

1984

Consumer behaviour of bank customers in Windsor, Ontario, 1982.

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CONSUMER BEHAVIOUR OF BANK CUSTOMERS
IN WINDSOR, ONTARIO 1982

by

Karen Ann Wettlaufer

A Thesis
submitted to the
Faculty of Graduate Studies and Research
through the Department of
Geography in Partial Fulfillment
of the requirements for the Degree
of Master of Arts at
(C) the University of Windsor

Windsor, Ontario, Canada

1984

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ABSTRACT

CONSUMER BEHAVIOUR OF BANK CUSTOMERS
IN WINDSOR, ONTARIO 1982

by

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Branch banking in Canada is now recognized as a low-order convenience function. This makes the branch bank network very responsive to changes in population characteristics. The more dynamic a population is the more opportunity there is for bank networks to expand or contract, depending upon the minimum threshold or feasible ratio of the number of banks to population. Information and predictions about consumer behaviour are necessary data for analysis of existing branches and possible new branch installations.

One purpose of this paper was to study consumer behaviour patterns of bank customers in the City of Windsor, Ontario. A second purpose was to examine population characteristics that are associated with good bank sites. The emphasis of the study was on the residential population. The information was obtained by means of a questionnaire distributed in 1982 to 900 households and from Census of Canada material in income, age and population density.

Eighty percent of the population used banks as their major savings institution. Consumers chose their bank primarily because it was close to home and secondly because it was close to work. The average distance of the bank trip was calculated to be

0.54 miles from home and 0.5 miles from work. The fact that these distances are similar is attributed to the high percentage of bank trips made by car for both cases. Bank customers are more likely to change to another bank if they changed their residence or workplace. Loyalty had little influence on new bank choices so that minimizing the distance was still the primary reason in choosing a bank.

Windsor had a service ratio of approximately 1 bank per 2700 people. Many banks had less than the average necessary threshold population within the estimated 0.5 mile trade area. The categorization of these bank sites into different types revealed that downtown banks and planned shopping centres did not exhibit the minimum service ratio. Only retail strip bank locations had sufficiently large residential populations to provide the minimum service ratios.

Age (potentially high savers of the 45-64 year olds) did not have any significant relationship with bank locations. Income had a moderately strong inverse relationship and population density had a moderately strong relationship. The degree of variation explained by each variable was low and it remained low when these variables were combined.

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Other people were equally instrumental in the completion of this paper. My fellow grad students were always there with words of encouragement, always polite enough to laugh at my jokes while remaining indifferent at the occasional insignificant pun. Thanks especially goes to Cindy Squires, B.A., M.A., for her help and friendship that developed as we worked under similar circumstances towards the same goal.

At the very least, I owe a thanks to my parents. They supported me through these years of school, never once suggesting that it was a waste of time. I am grateful for their understanding and patience.

Also through these years, a new friend taught me that believing in yourself does not equate with arrogance and that confidence can bring you success and happiness. Thanks, Janine, for being that friend, however her superior quality lies in her twins.

I do not consider people as frivolities of life. To me, they are life. And so with my statements of thanks comes sincere appreciation and gratitude. Since these people have all aided in the formation and completion of this paper, I feel I need to acknowledge them, whether appropriately or inappropriately, here and now.

If you have read this page and cannot appreciate it, it does not matter - because for once in this work I have written only for me. Whatever else I receive in this world, I am thankful for what I now have.

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CHAPTER ONE

INTRODUCTION

1.1 Purpose and Approach

Branch banking in Canada is now recognized as a low-order convenience function. This was not always true. In the beginning stages of banking in Canada, banks occupied prestigious downtown locations and this higher-order function gave the consumer little choice of banking locations. Through the years of urban expansion, the present system of a decentralized nation-wide branch banking system developed.

As a low-order convenience function, the branch bank network is very responsive to changes in population characteristics. The more dynamic a population is the more opportunity there is for bank networks to expand or contract, depending upon the minimum threshold or minimum feasible ratio of the number of banks to population. Information and predictions about consumer behaviour are necessary data for analysis of existing branches and possible new branch installations.

One purpose of this paper is to study consumer behaviour patterns of bank customers in the City of Windsor, Ontario. There are three main categories of bank customers: residents who bank

from their home, residents who bank from their workplace and commercial or business establishments. The emphasis of this study is on the residential population. The major part of the study is a consumer survey that focuses on the spatial habits of the consumer rather than the actions of the bank. The information was obtained by means of a questionnaire distributed in 1982 to 900 households.

Another purpose of this paper is to examine population characteristics that are associated with good bank sites. A study of branch bank deposits, savings, and loans potentials is the best approach for such analysis, but this information is unattainable from the banks. Therefore, the analysis is carried out using Census material on income, age and population density. Bank trade areas are estimated through a study of the effects of these selected population characteristics on the distribution of banks and typical trip distances of consumers. Bank locations are mapped and their distribution is categorized into a location typology.

This paper is an analysis of the behaviour patterns and population characteristics as they relate to the branch bank location network. The findings of this paper may be useful to banks and academic researchers insofar as they reveal the types of demands the population makes on the banks. The low-order convenience function makes banks sensitive to consumer demands. When location analysts know the behaviour of the population, it is easier to predict accurate trade areas and market shares for new and existing branches, especially in situations where

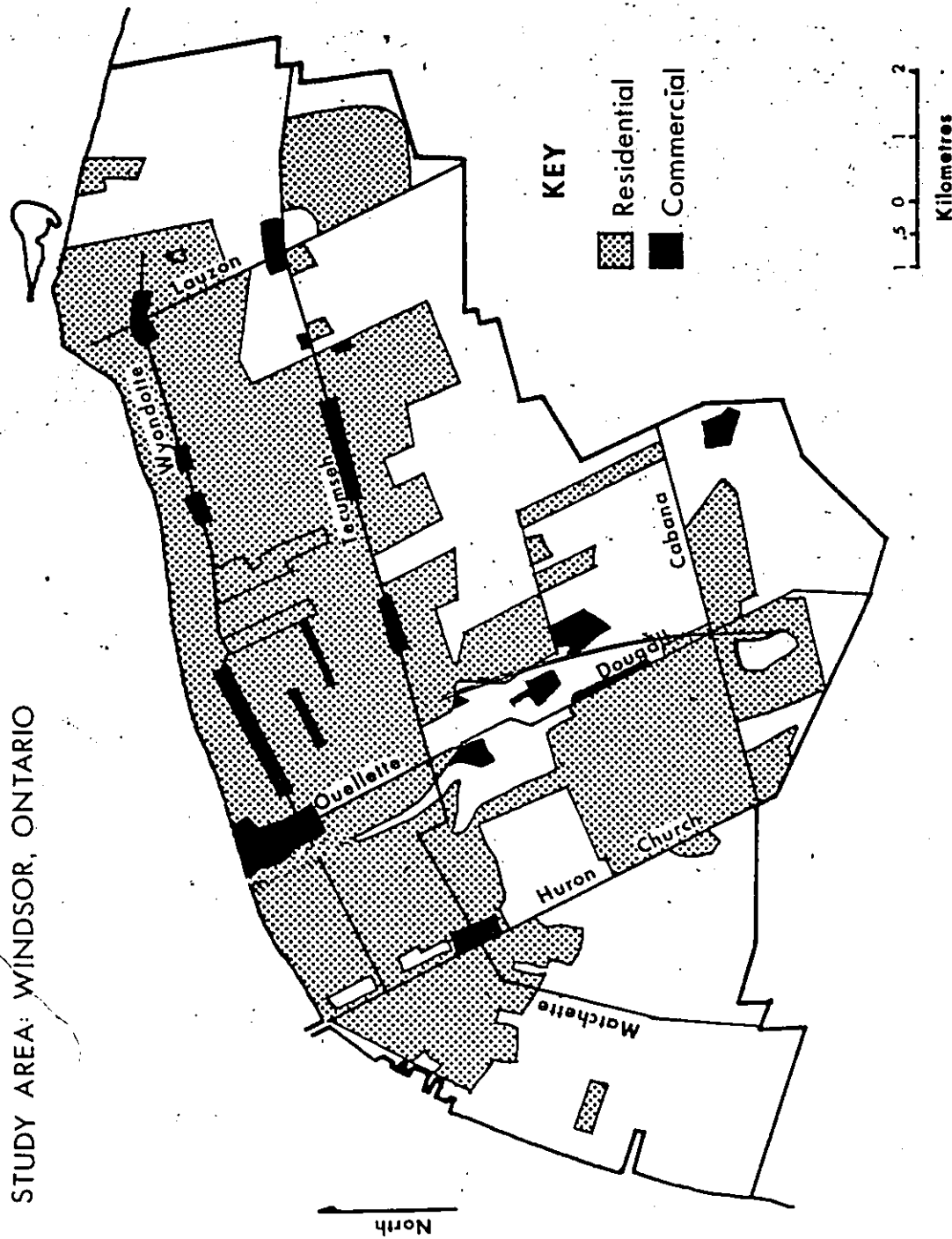
populations are changing. It is also useful to know through the study of the existing branch bank pattern whether general population characteristics (specifically income, age and population density) could be used as predictor variables for good bank sites.

1.2 Study Area

The City of Windsor, Ontario is the study area (Figure 1). Over the last 30 years, the city has usually had a stable or declining population. The only significant growth in city population occurred in 1966 with the annexation of surrounding townships. The number of branch banks has continued to increase despite some closures, and the city appears to be reaching a saturation limit. The average number of people per branch is referred to as the service ratio. The ratio for Windsor is lower than the national service ratio, indicating that Windsor bank customers are better serviced in terms of the number of branches to choose from with respect to the number of people in the area as compared to the nation as a whole.

The results of this study are applicable to a city of little growth or stable population. The application of these findings to other cities should be undertaken cautiously.

STUDY AREA: WINDSOR, ONTARIO



Source: City Planning Department, 1981

Figure 1

CHAPTER TWO

THE CANADIAN BANKING SYSTEM

2.1 Introduction

Before any study was made on branch banking locations in Windsor, it was important to understand the operation and development of the present banking system. This chapter outlines the beginnings of Canada's banking system. The level of government control is discussed under the Bank Act and the function of the country's major bank, the Bank of Canada, is also outlined.

There are other institutions that also provide services similar to the chartered banks and for the purpose of this paper they have been excluded from detailed examination. They are referred to as near-banks, and this chapter clarifies their functions and services. Finally, there is a summary of the situation of the banking system in Canada as it exists today.

2.2 The Formation and Development of Canadian Banks

The Canadian banking system emerged in the early nineteenth century. The demand for savings and investment services allowed entrepreneurs to form banks that provided the service of linking savers with investors. A charge for this service was the bank's

revenue.

Banks became more of a necessity to Canadians when their incomes increased to a level that allowed for more savings. The gross investment-to-income ratio was about 10-15% until the 1900's. Then the ratio rose to about 20-25% and it has remained at this level except during the Depression of the 1930's (Marr and Patterson, 1980).

The Bank of Montreal claims to be Canada's oldest bank. In fact, it started as a Private association and has been conducting banking activity since 1807. Actually, the Bank of New Brunswick in St. John's became the first chartered bank in 1820. The Bank of Montreal did not acquire a charter as a bank until 1822. Banks continued to open and expand until the late 1800's when there were a little over 40 chartered banks in existence. The exact date when there were a maximum number of chartered banks is difficult to pinpoint. For example, Marsh (1954) states that in 1836 there were 41 chartered banks. However, Marr and Patterson (1980) state that during the 1880's there were a record 44 banks. Through the course of bank failures and amalgamations over the next 50 years, the number of chartered banks diminished to 10. Presently, there are 11 chartered banks in Canada.

2.3 The Bank Act

Before the Bank Act of 1871, banking was under rule of the Parliament of Canada through the British North America Act of 1867. The Bank Act of 1871 is a Parliamentary statute that establishes the regulations for banking activities. It was

passed with the intention of being revised every ten years. However, temporary extensions on some of these 10 year revisions over the years have led to the last revision in 1980.

The Bank Act is a federal charter that outlines the provisions for private financial institutions granted the right to operate as a chartered bank. Until the Bank Act Revision of 1980, an Act of Parliament was required in order to charter a new bank. Now, new banks only need to obtain letters patent to become chartered. This provides easier entry into Canadian banking and may enhance competition.

All banks have identical charters that expire every ten years. Only institutions with such a charter are allowed to have 'bank' in their name. These chartered banks are not controlled or owned by the government, but because of the Bank Act they are subject to a degree of government supervision. This supervision concentrates on the incorporation of new banks and the inspection of bank operations. The Act does not outline any geographical limitation on bank locations.

2.4 Bank of Canada

The Bank of Canada is the central bank of Canada. It was originally a privately-owned institution established under the Bank of Canada Act. However, in 1936 the Act was amended to ensure that government ownership of the Bank was not less than 51% of the capital stock. This allowed the government to have majority voting power and the ability to select the majority of directors. In 1938, another amendment to the Bank of Canada Act allowed the government to buy all private stock and have complete

control. Now the Bank of Canada does not operate in commercial banking and is not subject to the Bank Act. As the central bank though, it does have the sole right of note and issue of our monetary system.

2.5 The Bank/Near-Bank Distinction

2.5.1 Banks

Chartered banks provide a specific range of services as defined through their charters issued by the Federal Government. This is in accordance with the Bank Act. The most important constraints in the Bank Act that affect the deposit business of a bank are the requirements for deposit insurance and the reserve requirements on Canadian dollar deposits.

Each bank must have cash or deposits with the Bank of Canada in amounts of 10% of their Canadian dollar demand and 3% of notice deposits. There must also be a secondary reserve requirement in cash, treasury bills or day loans to security dealers varying between 0 and 12%, as set by the Bank of Canada. In addition, each bank must pay deposit insurance premiums of 0.03% of outstanding Canadian dollar deposits to the Canadian Deposit Insurance Corporation (CDIC) in order to provide insurance against depositor loss.

The CDIC will insure any deposit account to a maximum of \$60,000. Because Canada's banks are nationwide operations, they do not face liquidity problems like American unit banks do. Cash withdrawals at one branch are offset by cash inflows at another. Therefore, deposit insurance is not as important to Canadian banks as it is to American banks. Since Canadian banks have not

encountered liquidity problems previously, they argue that they do not need deposit insurance, yet through the years the deposit insurance maximum has continued to be increased.

There are other institutions that offer limited banking services. For this reason they are considered near-banks. These institutions include private and government-owned savings banks, credit unions, licensed small loans companies and moneylenders, trust companies, investment dealers and insurance companies. Collectively, they provide competition but as individual financial groups each is much less important in dollar business than branch banks (Marsh, 1954). Banks account for more than half of all financial intermediary assets in Canada (Neave, 1981).

The same deposit insurance required by banks is available to near-banks. This allows these smaller financial institutions to reduce the risk of deposit liabilities and permits them to provide equal insurance of customer cash on demand.

Aside from the fact that banks hold a greater portion of financial intermediary assets in Canada than near-bank institutions, there are other distinctions between banks and near-banks.

2.5.2 Savings Banks

While most savings deposits in Canada are in chartered banks, there are savings banks that provide this service without a charter. The government disallows chartered banks to call themselves savings banks but does allow them to advertise their

savings departments. The only savings banks in Canada are the Quebec Savings Banks, the Post Office Savings Banks, the Treasury Branches of Alberta, the Savings Offices of Ontario and the Newfoundland Savings Bank.

2.5.3 Credit Unions

Credit unions (or Caisses Populaires in Quebec) have a branch bank type system with central credit unions and member credit unions. The central credit unions deposit surplus funds of the member or local credit unions for investment or loans. This is like the function of a head office of a chartered bank. The central credit union is also a clearing centre for cheques drawn on its members. They are subject to taxation only on their undistributed profits so they make loans to members at better rates than other lending institutions.

In the past, credit unions were exclusive with their memberships but this is changing. Membership in credit unions is now becoming open to anyone. Still, the number of their offices compared to banks is considerably fewer. Windsor, for example, had 69 bank offices and only 25 credit union offices in 1982.

Except for Quebec, credit unions which are under provincial jurisdiction are usually self-insured through the Canadian Cooperative Credit Society. Their deposits do not have to be covered by CDIC deposit insurance, but some form of deposit insurance is required in order to obtain a charter. The CCCS allows the same \$60,000 limit as CDIC but, unlike the CDIC, the

limit is good for each account rather than only for all accounts in the name of one person.

2.5.4 Loan and Trust Companies

These companies are under provincial authority except in Nova Scotia, New Brunswick, and Manitoba. They act as financial intermediaries and administrators of estates and trusts (ETA's). The intermediary business of the trust companies has grown during the 1970's due to expansion of their branch network. However, it is the ETA portion of the trust company business that is larger.

In the guaranteed funds section of business, trust companies borrow funds from trust deposits and guaranteed investment certificates to operate their intermediary business. This guaranteed funds operation is comparable to the savings deposit business of chartered banks except the trust companies do not need the same reserve requirements.

These trust or term deposits are the main source of funds. Between 1971 and 1976, trust companies increased their branches by 56% for the purpose of increasing their deposit business (Neave, 1981). However, Windsor only had 10 trust company offices representing 8 different companies in 1982. Trust companies can be insured by the CDIC for deposit insurance the same as banks. These deposit funds of the trust companies are reinvested mainly into residential mortgages.

The 1980 Bank Act revisions have seriously affected trust companies. The revisions indirectly allocate more power to banks

to operate savings and mortgage lending business through their affiliated corporations. This gives banks such an additional competitive advantage in this area of business over trust companies that some trust companies are considering eliminating their ETA business so that their intermediary business could convert to regulations under the Bank Act.

Another more abstract distinction results from the legal relationship between the depositor and the bank. Legally, banks are debtors to their depositors. On the other hand, trust companies are trustees for money deposited to them, yet, practical operations resemble those of chartered banks.

2.5.5 Summary

After all such legalities and distinctions are drawn between banks and near-banks, the only service difference apparent to the ordinary customer is the slightly higher rate of interest and longer or more convenient hours of operation provided by near banks (Marsh, 1954). A comparison listing of services is provided in Appendix A. Before 1967 banks were generally open Monday to Friday from 10 a.m. to 3 p.m., however, banks have become more competitive since 1967 with extended hours of operation (Binhammer, 1976). The main service difference now is the slightly higher rate of interest.

There appears to be another difference between banks and near-banks in relation to locational service. Banks seem to offer better service to the population due to their more extensive branch network. Chartered banks have a network of main branches usually in the downtown area and a large distribution of

secondary branches throughout the remaining urban area. Considering the financial institution offices of both main and branch offices, Windsor had 69 bank offices as compared to 25 credit union offices and 10 trust company offices. Only 2 credit unions had Windsor branches and only one trust company had a branch in 1982.

Therefore, banks are more accessible geographically than near-banks since near-banks do not have the well-defined locational network of the chartered banks. Nevertheless, near-banks are competition for branch banks for savings and loans and, as such, increase the density of banking services and reduce the market population for each branch bank.

There has never been a restriction on the location of branch offices of Canadian banks set out in the Bank Act. The extensive branch network seems to be one goal that Canadian banks are striving to achieve (Neave, 1981) and without any location restriction clauses in the Bank Act, this goal is feasible. There is a question as to whether banks wanted their present large branch network; whether it was their solution to maintain the proportion of deposit business each bank has, or whether each bank finds that their banking operations show decreasing average operating costs as new branches are opened.

The increasing suburban population in Canada in the 1950's and 1960's created a steadily increasing market potential for new bank branches. However, population growth is now levelling off and banks have saturated the market (Gobar, 1972; Martz, 1976;

Lisava, 1977). More branches are competing for business that is growing slower than before. Therefore, this suggests a slower rate of expansion of the branch network and even a reduction in the number of branches (Cox, 1979).

According to the major banks, they are, in fact, reducing the net number of operating branches. For instance, Canadian Imperial Bank of Commerce had 92 closings for 1981 (Annual Report, 1981). Nationally, the overall number of domestically owned bank offices declined in Canada from 7426 in 1980 to 7333 in 1981 (Financial Post, Aug. 14 1982). Annual bank reports claim the need to rationalize services and this has led to branch closures. While Canadians are well-served in terms of available operating branches, the system is being seriously refined and streamlined.

In 1967, Canada had 5945 branch banks. In comparison, the United States had ten times the population of Canada but only about six times the number of branches (i.e., 34,000 banks and branches.) Because of this variation in the service ratio, Potter (Neave, 1981) believes the Canadian branching system evolved through inefficiencies in bank operation. Neave and Purvis (Neave, 1981) examined the variation in cost of Canadian banking activity as a function of bank size and their results illustrate a relatively constant return to scale. Therefore, large branch systems, like that of Canada, would seem to be a method of maintaining market shares and greater profits (Neave, 1981). The debate of whether the existing Canadian banking

network was formed as major banks wanted it to or because of inefficiencies over the formative years continues.

CHAPTER THREE

REVIEW OF LITERATURE

3.1 Introduction

Studies on the question of branch banking locations include both marketing and geographic studies. Traditional urban hierarchy theories set out the major precepts that describe and explain central places and service centres. Urban growth theories explain the land use patterns within cities. There is also research literature on a variety of factors influencing the location of specific uses. These are concerned with an analysis of the critical factors influencing the choice of location for retailers and market analyses for service and trade areas. These types of studies have mostly been done for general retail outlets and not specifically for banks. Although there is little published research on branch bank location research banks have realized the importance that location has on the degree of success of branches. They generally have market research departments designed to research and advise on possible new branch sites.

In the field of marketing geography, many models have been designed and tested in order to develop a relatively accurate

method of determining appropriate store locations. Marketing involves identifying the demand for a good or service and constructing an efficient distribution network of supply. Geography identifies and explains the spatial structure of these supply and demand systems (Davies, 1976).

William Applebaum was an innovative contributor to geography who combined geography with business concepts. Store location research began in the 1930's when Applebaum was undertaking marketing research for supermarkets. He became largely responsible for developing marketing geography as an applied specialty. Subsequently, many others followed Applebaum's lead in retailing studies. Despite new approaches to retail location analysis, the banking system has not been analysed in such published studies until recently.

3.2 Traditional Theories of Urban Hierarchy

Central Place Theory, developed by Walter Christaller, is one of the most studied traditional theories of urban location. It is complementary to Alfred Weber's theory of industrial location which explains the location of a manufacturing firm through transport cost minimization. It is also complementary to Von Thunen's theory of the location of agricultural activities, also based on transport cost minimization. The main use of the Central Place Theory is for the explanation of the size, number, and distribution of "central places" or urban service centres under the assumption that there is some spatial ordering principle that dictates this distribution (Berry, 1967). However, the contribution from the Central Place Theory to this

work is the concepts of range and threshold of goods or services.

Christaller developed the concept of the range of a good or service as the maximum distance a person is willing to travel for that good or service. Also, he introduced the notion of threshold as the minimum population needed to support a particular good or service. Garrison and Berry found this minimum threshold population for banks to be 610 in their study of Snohomish County, Washington in 1958 (Kolaris and Nystuen, 1974). Wettlaufer (1980) found that banks were supported in hamlets of 420 along with hardware and grocery stores.

Another class of traditional theory is represented by the general interaction theories or theories of movement (Davies, 1976). Within this approach are various mathematical equations based on analogies with Newtonian physics and gravitational forces.

William Reilly developed the Law of Retail Gravitation in the 1930's (Davies, 1976). This dealt with retail "centres" as opposed to shopping strips. Reilly felt the trade area or distance people would travel to a centre depended on the distance between two centres and the relative size of each centre as measured by the number of businesses. This formula is as follows:

$$D_b = \frac{D}{1 + \sqrt{B_a/B_b}}$$

where D_b = breaking point distance from centre 'b'
 D = distance between centre 'a' and centre 'b'
 B_a = number of business types in centre 'a'
 B_b = number of business types in centre 'b'

(Applebaum, 1968)

This model has been revised to use other indicators of size (i.e., population and the floor area or businesses) in addition to the number of businesses. Since less detailed data may be required this way, it is quicker, easier, and cheaper to use. When using the Gravity Model to determine "break-points" between specific locations, especially for banks, the size and function of each branch is considered to be fairly uniform so that distance is the only factor entered into the equation. Therefore, it reduces to drawing the halfway point between two sites. In Christaller's terms, this is the range that people travel to a bank.

The model is based on aggregate consumer behaviour and it only considers a choice between two locations when there are really more than two locations from which to choose. Although this is a good way to initially estimate a trade area, there are many other factors to consider such as the existence of more than one competitor and physical and man-made barriers.

More recent models are based on the same principle but involve more detailed data using consumer expenditures so the basic formula becomes:-

$$S_{ij} = K_i E_i A_j F(d_{ij})$$

where: S_{ij} = expenditures in centre J by consumers in area i
 E_i = expenditures available in area i
 A_j = a measure of shopping attractiveness at centre J
 $F(d_{ij})$ = a measure of travel distance from i to J
 K_i = competition balancing factor

(Davies, 1976)

Similar formulae have been developed for banks and will be discussed later. In this case, the 'expenditures' are the

savings and loan potentials.

Davies points out that one problem with these formulae such as the one given above lies with the delimitation of trade area dimensions around centres. Reilly's model establishes a sharp break-point (assuming more than one centre) but there are in reality areas of overlap. In this respect Huff's model is a better approach. Davies distinguishes Reilly's model as deterministic while he sees Huff's as probabilistic.

Huff's model is based on estimating a series of probabilities of consumers choosing to shop at one location over another location or store again based on the same principles. The model is stated as follows:

$$P_{ij} = \frac{F_j / d_{ij}^{\alpha}}{\sum_j F_j / d_{ij}^{\alpha}}$$

where: P_{ij} = the probability of a trip from area i to centre j
 F_j = the attractiveness of area j (measured by flow space)
 d_{ij} = the deterrence factor (measured by travel times)
 α = an exponent calibrated for different trip purposes

(Davies, 1976)

Lundsten interpreted the variable " d_{ij} " as the accessibility of a retail facility j to a consumer located at i . This distinguishes Huff's model from Reilly's in that it links the gravitational model to a less deterministic theory of behaviour in that the consumer is offered as many choices as are available.

3.3 Urban Growth Theories

While some traditional theories explain the location of urban centres in a given region other urban theories explain the patterns of land use within a city. One of the first significant

studies was undertaken in the late 1930's by Ernest W. Burgess, a Chicago based urban sociologist (Berry, 1970). Burgess developed the Concentric Zone Theory under the assumption that the growth of a city moves equally out from the city's central downtown area. Different land uses locate in rings around this central area. As the city grows and time passes, people move out from the city centre so that the longer they reside in a particular city, the farther from the centre they live.

The central ring, known as the central business district, is surrounded by a transition zone of more deteriorating buildings. The working class zone is next, followed by the middle class and the residential commuter zone. Burgess was primarily concerned with residential land use and did little analysis of commercial patterns. The theory was developed at a time when walking, the streetcar and the bus were the main modes of transportation in a city. It also suggests that most business was downtown in the central business district. Banks, according to this theory, would only have located in this central location.

In the early 1940's, Homer Hoyt introduced the Sector Theory of urban growth. Hoyt disagreed with Burgess' ring theory, asserting that the residential areas developed in wedges or sectors rather than as concentric rings. These sectors followed transportation routes. Hoyt's theory is more applicable to cities with a radial transport system focused on a central business district. Commercial strings are also more pronounced along major transport routes. His theory was based upon

urban economics and real estate principles. In Hoyt's theory, banks would locate on sites along the transportation routes that radiate outward from the downtown centre.

In 1945, Ullman and Harris set out their Multiple Nuclei Theory for cities with more than one central business focus, like Windsor. They argued that certain activities group together because they support each other. These compatible uses cluster together because of a force they described as 'functional magnetism'. Different urban functions locate at varying distances from the CBD because they cannot afford the higher rents of the more central land. Such functions may cluster as major planned shopping centres, industrial parks, office parks, or even as discrete planned suburban communities. Whereas Burgess observed concentric development of land use and Hoyt observed linear or corridor patterns as being dominant, Ullman and Harris focused on developments as clusters, or pockets, occurring in a less regular geometric and discontinuous pattern. From this rather simple theory, the 'pockets' of retail areas would contain banks associated with compatible development.

3.4 Empirical Location Research

3.4.1 Factors of Location

There are also a variety of studies relevant to banking that are more empirical in orientation. Richard L. Nelson proposed eight principles of store location based on the assumption that all retail stores are market-oriented, so the retailer must be accessible to the people (Applebaum, 1968). These retail stores are either generative in nature so that they attract the customer directly from his residence or susceptible, a situation where the

customer enters the store only because he is already in the area. Banks would be suscipient if people would choose them so they could shop and bank together. Nelson's location principles are based on three factors: the accessibility of a location to people, the attractiveness of the location, and the reputation of the retail outlet.

The first location principle is the achievement of an adequate area sales potential. The trade area, the population income, and the amount spent on particular goods must be known as well as an estimation of how adequately the area is already served by the provision of a particular good or service and how much of this trade a new store could capture.

Once it is established that an area can support another outlet, the accessibility of the potential sites to the trade area must be examined. There should be maximum accessibility obtained through generative business (by the store alone), through shared business (by the generative powers of surrounding stores), and through suscipient business (coincidental attractiveness of area stores).

Another Nelson principle of store location requires an estimation of the growth potential of the area surrounding a proposed location. Preferably, the area should show signs of population growth and/or increased income. Future competition is an unknown quantity according to Nelson, but present day researchers have better market information and have sharpened their analytical tools to better anticipate the moves of

competitors.

Nelson also believed that better locations will intercept business from competitors. This is accomplished by simply locating between the location of residential concentration of potential customers and the location of the competitor.

Cumulative attraction is another consideration for evaluating potential locations. Compatible stores that locate together and offer a larger selection of goods and services can lead to an interchange of customers. This attracts more people than when the stores are located alone. For banks, the cumulative attraction principle assumes that people prefer to shop and bank at the same location.

The site of a new store should have a minimum degree of competitive hazard, that is, it should be in an area where there is a minimum number of available sites for a competitor to locate. The competitor could turn any of these available sites into his own business interception location. It is also more advantageous, in Nelson's opinion, that a location be on the right side of the approach to the store from the more heavily-populated sector of the trade area. It is not clear whether banks prefer this type of location or whether they prefer the right hand side of the road for homeward bound traffic as is the case with convenience stores and gas stations.

The last of Nelson's eight principles concerns site economics. After all the other factors are considered and

several choice locations have been selected then the final choice must be the best site for the lowest cost between sites with the best present market and future growth. This is where the choice becomes more dependent on the wishes and capabilities of the decision-maker. Firstly, it depends upon how much the retailer is willing to initially spend and risk on a site. It also depends on how long he will tolerate a financial deficit before making a profit. Lastly, it depends on what he considers to be an acceptable profit level. A site that one retailer may believe is unacceptable could be the site that a competitor, who might set lower profit limits or who tolerates a higher initial cost, successfully occupies. Site selection for branch banks may be a less critical location factor because of their convenience function and a short radius of operation. Within a relatively small trade area, accessibility to a selection of branch banks tends to be a more uniform factor.

In addition to Nelson's list of necessary location factors there are three principles dealing with store acceptance, market saturation, and master planning. Any retail outlet needs to be accepted by the expected trade area population in order to be successful. For example, a bank may have the potential to do well on a site, but for various reasons such as a poor local reputation, the population may not accept and patronize it.

Consideration must also be given to the saturation of the market. If the area has an overabundance of one type of service then oversaturation will exist and there will not be enough business for each outlet. If the reverse occurs, the market is

undersaturated and individual stores have more business than otherwise expected. This is the ideal situation to encounter for a new store or branch bank. Equilibrium is the point where there is a saturation of the market and there are just enough stores of one particular type to service the surrounding population.

Lastly, the choice of a site must coincide with municipal policies and corporate strategy. Building permits, business licenses and various inspections may be required for the establishment of a new business. The choice of each additional branch location must be compatible with other locations of a given bank in a community.

Nelson's principles can easily be applied to banks. The principle of determining the trade area sales potential is presently employed by banks. Several population characteristics are used to determine the existing adequacy of financial services for an area.

The estimation of the growth potential for the area is the next step in analyzing a potential new bank site through population projections and other population and business characteristics. While many banking studies have not found the joint convenience of shopping and banking popular as a decision factor for choosing a bank, banks remain in general retail locations. These can be located downtown, along major retail routes or in planned shopping centres. The compatible nature between banks and other retail stores and at least the possibility of cumulative attraction for those few people who

Prefer to shop and bank together make these locations most popular for banks.

3.4.2 Market Analysis and Trade Area Delineation Trade Areas

To further understand consumer behaviour and locational preferences in shopping, a trade area approach has been taken by several researchers. A trade area is a defined geographical area from which residents come to patronize a specific retail store. There are several ways to delimit trade areas.

Potential trade areas can be estimated from the application of the results of a variety of customer surveys as they apply in different economic situations. Standard trade area sizes for categorized location types are used for general analysis. For example, Ransome (1961) developed 16 empirical location types of supermarkets, varying in size and situations of cumulative attraction.

Existing stores may already have trade areas mapped out through customer address plotting. Potential future locations can be categorized into location types such as suburban locations or regional mall locations. Any existing stores with the same location type can then be used as a reference for an expected trade area radius for a proposed store (Ransome, 1961).

Theoretical trade areas can also be drawn. The procedure may require the utilization of gravity models and the plotting of a series of contours of probability values. Customer surveys of an existing competitor in the vicinity of a proposed store may

also suggest the likely shape and size of trade area for a new store.

There are three types of trade areas. The simplest type with a single boundary line is called the 'general trade area'. This area is known as the maximum trade area and encompasses 100% of the customers. This maximum range of customer travel lacks the detail of other trade area types such as the proportional trade area.

Composite trade areas have multiple boundaries, each referring to different types of goods. Department stores utilize this method to determine the size of each department within the store.

Proportional trade areas have different boundaries for trade areas representing the cumulative percentages of expected patrons. Applebaum (1968) classifies them further. The primary trade area for retailing is that area around a specific location that has 50% to 70% of the expected customers. The secondary trade area has an additional 20% to 30% and the fringe area, or tertiary trade area, has the remaining 10% to 20%. These figures are often used in other studies but the geographical size of each area differs substantially from one type of retailing to another.

3.4.3 Estimating Trade Areas

According to Applebaum, trade areas for rural areas can be determined through the use of Reilly's Law of Retail Gravitation and the limit of trade to one town as opposed to another will be expressed as a specific number of minutes of driving time away

from the town centre. This application is more complicated within metropolitan areas because of the number of competitors and different types of competitors. Driving time distance can be very irregular and dependent on the hour of the day and the street configuration, and is not necessarily related to straight line distance. Applebaum and Cohen (1968) state that trade areas for city sites must be delineated empirically and individually through map plotting of customer addresses. Studies from stores with similar features of a proposed site are applied in these cases.

For a large shopping centre or downtown, the trade area may enclose an entire city and a customer survey is of lesser importance. For a single, small retail store an accurate estimation of a trade area may be a life-and-death situation for a business, and for a branch bank as well.

3.4.4 Market Shares

Once a trade area has been estimated some proportion of this area will be the market share for one retail store. Applebaum expresses it as follows:

$$\text{Market Share} = \text{Store Sales Per Capita} / \text{per Capita Sales Potential}$$

Applebaum's method of estimating market share for retailers is an extension of his method for breaking down the proportional trade area into primary, secondary, and tertiary trade areas. A 1/4-mile square grid is placed over the population map of an area and grid populations are recorded. The size of the grid is flexible, depending on the desired detail and the size of the area.

The likelihood is that a store with a higher share of the market is pulling from a relatively long distance and is obtaining a relatively high share of market within all zones of its trade area.

Each grid square shows the total buying potential (or the maximum demand) in that grid square for any good or service in the trade area. Then an inventory or count of all of the service facilities in the area (or the suppliers) is made and the share of the market of each supplier can then be calculated.

If a customer sample survey of a store, or branch bank, is conducted and mapped by address, a basis is laid for estimating the market share. Each customer is regarded as being equal to any other customer. If a grid is placed over the customer address map, the percentage of customers within each grid may be converted to a dollar share of total store sales or branch bank savings. This dollar share can then be compared to the total demand potential for each grid.

3.5 Branch Bank Location Studies

3.5.1 Trade Areas and Market Shares

The empirical and theoretical location research referred to thus far relates to retail stores in general. Published bank location studies have not been as extensively made available until recently. One of the most comprehensive sources describing branch bank locations is published by the American Bankers Association. A Guide to Selecting Bank Locations (1968) is a booklet in which the Association has systematically described the information needed to evaluate bank locations and noted where

this information is available. However, it is described as a 'Judgemental checklist' because it sets out few objective procedures and leaves many decisions to the discretion of the analyst. The reason for this lack of precision was probably so that the Guide could accommodate the practices of different branch location analysts for each bank.

The ABA Guide states that the first criterion for drawing a trade area for a bank is to consider the normal trade area radius that has been found in previous studies. The distance people will normally travel to a bank can then be revised by considering other local effects such as traffic barriers, traffic flow patterns, driving time, public transit routes, transit stops, and pedestrian traffic. They suggest that population densities will have an inverse relationship to trade area size and competition. Areas that are undersaturated will find people travelling farther to a bank than areas that are market-saturated. The latter areas tend to be areas with higher population densities or located near or within shopping centres.

In the American Bankers Association guide, as well as other sources that emphasize the trade area approach, it is stated that this evaluation is critical since all other calculations are then limited to that area. An overestimated trade area may suggest false profits for a poor location and an underestimated trade area may suggest false deficits in a potentially successful location.

While some location analysts view the trade area estimation

important enough to calculate for each specific case, there are others who feel the use of quoted values from past literature is sufficiently accurate. C. Joseph Clawson (Lundsten, 1978) used a standard two-mile trade area radius. In a study involving the re-evaluation of marketing strategies for individual branch locations, he claimed that previous studies had indicated banks received 60% to 90% of their total savings deposits within a two-mile radius. Therefore, he felt any further analysis on the shape or distance of a trade area was unnecessary. As a specific example, in 1975 Michigan National Bank used a two mile radius in a proposed branch office analysis for Oakland County, Michigan (Martz, 1976). The wide range of 60% to 90% however, has led other researchers to seek out refinements of this rule-of-thumb approach.

The Bank of America analyzes such variables as commercial districts, natural or man-made barriers and zoning changes when determining potential trade areas for new branches. The effect of these variables results in trade areas which are not circular or rectangular shapes or shaped like statistical geographical units (e.g., census tracts). They do not project trade areas simply on the basis of the number of households. They also use the character and income of households and the nature of the competition. Trade areas generally range from 0.3 square miles to 10.0 square miles.

J. F. Lisava (1977) developed a computer-based model to economically evaluate potentially successful bank locations.

The model describes three modules of information labelled as Forecasting Business Potential (to give a dollar value), Allocation to Competing Branches (to give a dollar volume), and Income and Expense Analysis (to give the net present value of cash flow) in detail. The branch's trade area is merely listed as one input. This seems to make the trade area estimation appear of minor importance. However, it would be difficult to forecast dollars of savings or competition shares, without delimiting a trade area of known population and income.

Frederick Davidson (1969) attempted a method of locating branch banks using a modified retail gravity model. First he made the common assumptions that the two determining factors of attractiveness to a particular location are the size of the store and the distance from the store to the customer's point of origin. Using the Gravity Model, the relative attractiveness was directly proportional to the size of the store and inversely proportional to the distance to be travelled.

His second assumption was that among competing banks, size is not an affecting factor. Since most people bank near work or home, distance is the only factor that needs to be considered in Davidson's Gravity Model.

After Davidson's assumptions led him to the conclusion that distance is the only variable to use in a bank location model, he suggested that a simple line drawn half way between bank locations would assign each bank a corresponding trade or service area. He did recognize that some bank locations had more than

one bank, as is the case in some shopping centres. Therefore, he re-defined his trade area lines to represent trade area limits between all branches in a centre and all surrounding banking offices not located within the same shopping centre. Again, this is a very simplistic approach to evaluating trade areas. It assumes an isotropic urban environment so that factors such as traffic patterns and population density are the same in all directions of the trade area around each bank. This method does not include a measure so as to estimate branch bank saturation levels.

Once the trade area has been defined for a retail store, the market share can be estimated. The same is true for bank branches. The ABA guide points out that affecting factors for the market share are transfer effects from existing to new offices, competition effects from other institutions, and new office effects on consumer behaviour. Lundsten (1978) credited the ABA for leaving these factors as judgmental decisions for bank marketing experts rather than developing a quantitative formula for them. However, he criticized the procedure for giving no weight to the population outside of the estimated trade area that might use the new bank. Also, inside the trade area each household is given an equal probability of patronage. Logically, the probability of patronage should decrease as distance increases from the site, in accordance with distance decay principles and intervening opportunities.

J. A. Healy (1972) modified the ABA model for computer use to estimate the relative desirability of many possible locations.

It is known as the ABLES Model (Automatic Branch Location Evaluation System). The trade area is calculated using the ABA procedure and Census Tract data. Market share potentials are computed for each existing bank and for hypothetical new banks at 1/2-mile grid network intersections. Then there is a manual evaluation ranking the most favourable locations. This method properly takes into account local population, income, and savings potential within half-mile grids. Equally important, it includes those banking facilities which share the trade area potential.

Lundsten criticizes Healy's method since it assumes square trade areas. Healy's method only considers the primary and secondary trade areas, assuming that fringe trade areas are not significant. Also in his market share equation of:

$$S = \frac{1}{(2Bc + 2Bt + 1)}$$

where: S = market share of new branch
 Bc = existing commercial banks
 Bt = existing thrift institutions

(Lundsten, 1978)

the other competitive institutions are arbitrarily weighted. That is, commercial banks are weighted 1 and thrift institutions are weighted 2, since thrift institutions attract more savings.

F. John Devaney (1973) used a network approach to determine the market share of a bank location. The first step is to locate nodes of potential for a new branch and show the major street networks connecting these nodes. Travel time is measured and recorded with a computer algorithm and the minimum travel time

between all consumer nodes and all potential and existing bank locations is calculated. His distance decay curves show the effect of travel time on the market share. Lundsten points out the main fault of this method is that it does not single out competition. Competitors closer to the bank customers are ignored.

John D. Nystuen (Lundsten, 1978) also uses a distance-decay function. A random selection of customer addresses from one branch are plotted on a map and the distances are recorded. These are fit to a curve which represents the probability of banking at a branch with respect to distance.

Nystuen proposes to then re-use the curve for other nodes to find the probability of banking at other possible locations. However, this assumes that the type of location to be established is identical to the sample location. It also assumes a similar mix of competition. If distance is the main factor influencing customers the model is accurate, but if patronage differs greatly among offices of competitors the model could predict inaccurately. Nystuen's method is most applicable to banks in residential neighbourhoods since it lacks a categorization of branch banking types.

James A. Wadsworth and Katherine Gasnon (Lundsten, 1978) created a more realistic model beginning without any absolute market boundary for a site. The model estimated that market shares decrease monotonically with distance. Their model has a subjective competitive factor that is weighted by the inverse of

the consumer's travel time to specific banking offices.

The services offered by the bank, quantity and quality of personnel, the surrounding environment, the accessibility to and from the site, parking and visibility are the main factors considered in evaluating the subjective competitive factors. The equation is stated as follows:

$$MSJ = \frac{\sum J(CFi)(DVJ^{-1})}{\sum i \sum J(CFi)(DVJ^{-1})}$$

where: CFi = overall subjective competitive rating for branch i
DVJ = the inverse travel time (minutes) from the population centre to banking office J
MSJ = the market share for banking office J
(Lundsten, 1978)

Anytime subjective factors must be included in calculations the equation is open to criticism. The weakness is whether these factors can be weighted properly. Nystuen also takes issue with the assumption that patronage declines linearly with travel time.

As mentioned earlier, Lisaga's computer-based model had a module entitled, "Allocation to Competing Branches". Here, the market share is determined as measured by the number of accounts and total dollars available using known principles of convenience and consumer behaviour. The principle of convenience utilized was from a survey where over two-thirds of the respondents claimed distance or travel as the primary factor in their bank choice. Consumer behaviour was related to the age of the branches where the longer a branch had existed, the larger market share it would have since residents are more familiar with it.

Davidson's method of estimating market share considers four variables once the trade area is defined. These variables are the number of potential customers from census tracts in the area, the number of employees in the area, the average family income for the area and the number of competitive banks. In his own study, he substituted the number of employees with the total retail sales since the employee information was unattainable. For this he assumed that the number of people working in an area is closely related to the total retail sales.

3.5.2 Consumer Choice

Lewis S. Saunders (1969) summarized all the factors bankers believe to be the most important characteristics of successful banks. Successful banks need locations near the residences of consumers or major places of employment or shopping. In addition, adequate parking, drive-in services, good road access and accessibility to major arteries are also required. All of these factors relate to consumer convenience in terms of accessibility.

Although convenience is the most frequently cited marketing necessity, several other factors may influence the banking consumer (Lyndsten, p. 6) such as service charges, loan rates, interest differences paid on savings accounts and differences in services offered.

Bank marketing research experts do not agree on the relative importance of these factors. The extreme opinion is that convenience is the only consideration in choosing a bank. A less deterministic opinion is that convenience is the main

consideration in the choice process and other factors are considered only when the closest distance to a bank is shared by more than one branch. Another opinion assumes that each factor has some weighted value for the consumer and consumers choose a bank that gives him/her the greatest perceived utility from all factors combined.

In a United States banking study, Earl and Rose (1976) viewed chequing accounts as the most important service offered by banks. They state that marketing studies suggest the critical factors influencing the locational choice of a bank by regular customers are acquaintances or personal influence, the convenience of the bank, the availability of full-service banking, the direct contact from a bank, the "Pleasantness" of the banking experience, and the accessibility to shopping.

Unpublished reports of consumer surveys conducted by the Bank of Montreal in Canada for 1974 and 1976 found that location was only ranked fourth as an important factor influencing a customer's choice of main bank in 1974. In 1976, location was not only noted as important but was the most significant factor of consumer choice. The friendliness of the staff was rated as the second most important factor, and the reputation of the bank was third, although far less important than location.

Another consumer behaviour study was completed in 1969 by City National Bank and Trust Company of Columbus, Ohio. Leading executives wanted the bank to become the retail banking leader of Ohio. They decided to adopt a more market-oriented approach to

meet this objective.

The first step of their marketing program was to serve the consumer better by being more accessible. They opened new branches in or near the highest population growth areas and in the most accessible traffic positions. The second step of the program was to create an advertising campaign to convey a distinct bank image. Through their program they realized for banks to become consumer-oriented would be more difficult because of shifts in population and income. Nevertheless, they felt the rewards would still be greater for the bank.

Although services offered by a bank are listed as important consumer choice factors, the location of a bank consistently appears throughout many studies as being the major factor influencing choice. Using step-wise multiple linear regression, Clawson (1974) tested 24 location variables to find the most significant characteristics related to the number of accounts in an area. He eliminated 14 weak or duplicated variables and found 3 main variables influencing good bank office location.

According to Clawson, if a site has successful competing facilities within a 2-mile radius, a high percentage of population aged 45-64 in the same radius and a highly-rated exterior building attractiveness, it should be a good bank location. The exterior attractiveness would probably be less of a factor in Canada where our 11 main banks have recognizable characteristics across the country. This is in contrast to the unit banking of the U.S. with many hundreds of different banks

constantly fighting to be locally recognized.

— Clawson also found characteristics of bad locations for banks. A branch site that is located near a competitor's main office, along approaches to planned shopping centres, or among many renter-occupier dwellings generally would not be successful, or at least less successful.

Financial services can be considered a continuous process service where once the decision of where to bank has been made, it does not consciously have to be repeated every time a customer makes a transaction. In comparison, many retail goods have an alternate purchase nature where the decision of where to make the purchase is a conscious one that could change every time one makes a purchase. The choice of a bank office is made relatively infrequently. Since consumers do not seem to change branches often, it is important to attract new customers whenever they can. Lundsten (1978) found in a study of Farmington, Michigan that the median length of office patronage for checking services was 5.9 years and for savings services it was 6.7 years.

3.6 Summary

The earlier works on theories of urban hierarchies and urban growth do not easily lend themselves to empirical location studies of specific site locations. They were developed for a macro scale analysis of urban systems. Traditional theories consider the distribution and placement of whole cities on a landscape. Urban growth theories seek to explain basic land use patterns within cities. Urban growth theories do categorize

general urban sites and explain their placement in a city relative to other land uses, but they do not examine the elements of distinct sites on the micro level. However, it is possible to draw some conclusions and analogies from both urban hierarchy principles and urban growth theories at the micro scale level analysis of specific sites.

Christaller's hierarchy principle basically results in larger centres being served by a number of smaller centres. This can be applied to banks in the distinction between head offices and metropolitan branches. As stated throughout the literature, however, this is a simple hierarchy. Size variations among branches appears to be non-existent, at least as it is perceived by bank patrons, so that the only existing hierarchy is the distinction between head offices and their metro branches.

More importantly to this study, Christaller's work sets out the concept of threshold or the minimum number of people needed to support a bank and also the concept of range or the maximum distance people are willing to travel to a bank. This range value is reflected in trade area limits established in later works.

The gravity model was first used to determine the range people would travel to another urban centre based on the populations and functions of two centres. The model has been adapted for specific bank site analysis within an urban centre. Because of the uniformity in branch size and functions, the formula reduces simply to the half-way or break-point between two

branch locations. Other modifications of the gravity model have led to predicting consumer banking expenditures in a city through measurements of potential expenditures, shopping attractiveness, travel distance and competition. Also, the model has been transformed into a less deterministic model by Huff that recognizes areas of overlap in trade areas.

The urban growth theories of Burgess, Hoyt, and Ullman and Harris can be used to explain the spatial pattern and typology of branch sites in a city. Burgess' concentric zone theory explains the historical concentration of head offices and branches in the downtown core. Hoyt's sector theory illustrates the positioning of branches along major transport routes from the central core. Ullman and Harris explain the location of banks in shopping centres where clusters of businesses exist outside of the downtown district. These three theories can be used to categorize the different location types of branch locations in a city.

Empirical research on retailing is particularly important to branch bank location analyses since the availability of studies on banks is limited. By understanding these approaches to general retail location, improvements and refinements on branch bank location studies can be made.

Branch bank location studies reveal two main conclusions. Firstly, since services are considered to be relatively equal from bank to bank, location becomes the most important reason for bank choice. Secondly, to understand the degree of importance of

location and the terms by which 'location' is defined or perceived by a potential consumer, actual behaviour must be observed. Convenience and the location of banks can only be more clearly defined by knowing consumer habits. Information such as the customer point of origin, the distance travelled, the mode of transportation used, and the effect of competing branches are required background information to understand branch banking and bank office location.

As mentioned with the City National Bank study, consumer behaviour appears to be very important to banks now that they are low-order convenience-type services. This type of published research on consumer behaviour of branch bank customers is limited, however, consumer studies are necessary in the planning process of branch bank systems since consumer behaviour is dynamic. Ironically, this dynamic character makes it difficult to keep pace with the changing consumer characteristics and behaviour.

CHAPTER FOUR

AN OVERVIEW OF THE WINDSOR BRANCH BANKING PATTERN

4.1 Introduction

Historically, banks were concentrated in downtown cores mainly due to agglomeration economies, the lack of good transit systems for customers and the lack of modern communications systems. Customers eventually decentralized into the suburbs and branch banks followed, aided by advancements in technology that brought about widespread acceptance of cheques and credit cards, and electronic banking (Bies, 1977).

Branch banking is now being classified as a low-order, consumer-oriented function (Ashcroft, 1979; Earl and Rose, 1976). The convenience factor has become an important aspect of a bank's ability to compete successfully (Gabor, p.68). Davidson (1969) and Binhammer and Williams (1976) also argue that banks are now convenience-oriented.

Branch banks are becoming decentralized, and their locations possess the characteristics of convenience sites. They maintain locations with high visual exposure and large volumes of passing traffic. In Windsor, these locations are downtown as suggested

from Burgess' work, along major retail strings as suggested through Hoyt and in planned shopping centres as derived from Ullman and Harris.

4.2 Comparison of Branch Bank Growth in Canada and Windsor

Canada has 11 chartered banks operating across the country. Table 1 shows the banks and the number of offices associated with each bank as of the year end of 1980. Of these 11, there were 6 chartered banks represented in Windsor with 69 offices. These banks and their number of offices in the city are also presented in Table 1.

Table 2 shows the number of all banks and their branches, population and service ratios for Canada and Table 3 shows the same information for Windsor. Since 1980, Windsor attracted 1 more new bank so there are now 7 chartered banks serving the city.

On the national scale, between 1961 and 1981 the overall number of branches has increased steadily. The net population of Canada has also increased during this time, however the proportionate increase in the number of branch banks is greater than the proportionate increase in the population. The result was a lower national service ratio. This is one of the best service ratios in the world (CBA, 1977).

Over the recorded years (1951-1981) for Windsor there has been a continuous growth in the number of branch banks until the 1976-1981 period. The population trend over the years was not as steady. Between 1961 and 1966, the Windsor population increased

TABLE I

NUMBER OF CHARTERED BANK OFFICES*
IN CANADA AND WINDSOR, 1980

BANK	# OF OFFICES IN CANADA	# OF OFFICES IN WINDSOR
CANADIAN IMPERIAL BANK OF COMMERCE	1703	21
ROYAL BANK	1509	11
BANK OF MONTREAL	1292	13
TORONTO-DOMINION	1013	10
BANK OF NOVA SCOTIA	1012	7
NATIONAL BANK OF CANADA	786	7
BANK OF BRITISH COLUMBIA**	47	--
CONTINENTAL BANK OF CANADA	22	--
MERCANTILE BANK OF CANADA	15	--
CANADIAN COMMERCIAL & INDUSTRIAL BANK	8	--
NORTHLAND BANK**	7	--
TOTAL	7414	69

* Refers to all main offices and branches

**Not represented in Ontario

Source: Bank Directory of Canada, 1981

TABLE 2

BANK SERVICE RATIOS FOR CANADA: 1961-1981

YEAR	NUMBER OF BANKS**	% CHANGE	POPULATION*	% CHANGE	SERVICE RATIO (POP/BANK)	% CHANGE
1961	5224		18,238,247	+ 13	3491	
1966	5807	+ 11	20,014,880	+ 10	3447	- 1.0
1971	6352	+ 9	21,568,311	+ 8	3395	- 2.0
1976	7113	+ 11	22,992,604	+ 7	3232	- 5.0
1981	7414	+ 4	24,343,181	+ 6	3283	+ 2.0

Source: * Census of Canada, 1981
 **1961-1976 Binhammer & Williams, 1976
 1981 Bank Directory of Canada, 1981
 as of December 30, 1980

TABLE 3

BANK SERVICE RATIOS FOR WINDSOR, ONTARIO: 1951 - 1981

YEAR	NUMBER OF BANKS**	% CHANGE	POPULATION*	% CHANGE	SERVICE RATIO (POP/BANK)	% CHANGE
1951	34		120,049		3531	
1956	37	+ 8	121,980	+ 2	3297	- 7
1961	44	+ 16	114,367	- 6	2599	- 27
1966***	52	+ 15	192,544	+ 68	3703	+ 30
1971	59	+ 12	203,300	+ 6	3446	- 7
1976	69	+ 14	196,526	- 3	2848	- 21
1981	69	0	192,083	- 2	2784	- 2

Source: * Census of Canada, 1981
 ** Windsor City Directories
 ***Year of Annexation

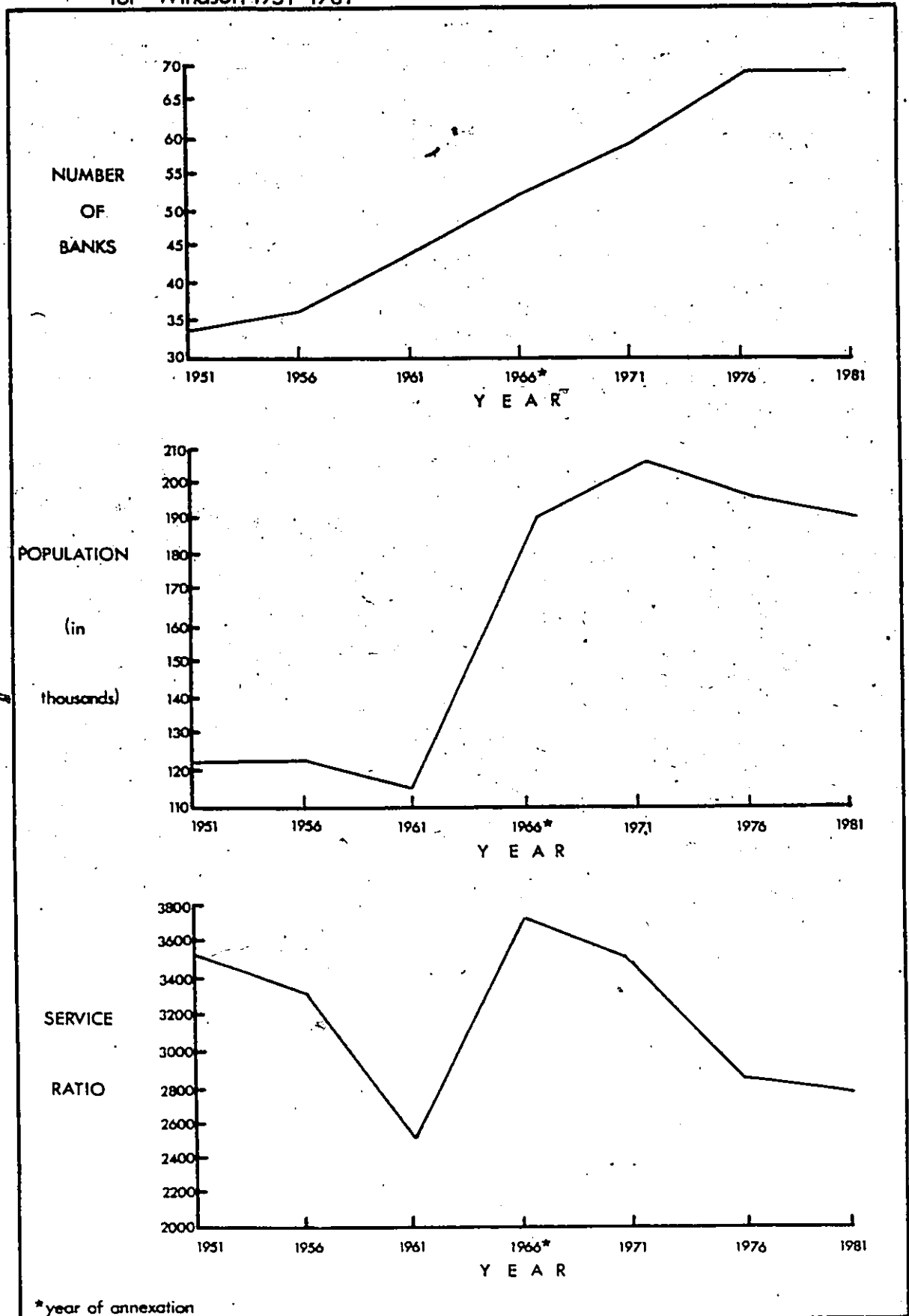
by 68%. This is mostly attributed to the annexation on January 1, 1966 of the neighbouring municipalities of Riverside, Ojibway and Sandwich East as well as parts of the townships of Sandwich South and Sandwich West. (Service ratios declined in Windsor until this annexation brought a larger population increase compared to the increase in the number of branch banks within the new geographical limits of the city. Figure 2 shows these trends of bank, population and service ratio changes over the years.

The local service ratio has not experienced the continuous decline in recent decades of the national service ratio. A large decrease in the service ratio occurred in 1961 after much of the population had left the city. In 1966, when the population increased tremendously, largely as a result of city boundary changes, the service ratio technically increased to a point higher than the national average. The increase in the number of branch banks (15.0%) was not enough to offset the population increase (68.0%) and the result was a higher service ratio.

In summary, at one time Windsor had a service ratio lower than the national service ratio. Due to annexation, there was a technical increase in population and the effect was to leave Windsor with a higher service ratio. However, time allowed the branch bank system to respond to the situation and the result in 1981 was once again a ratio lower than the national level. Windsor's ratio was 2784 persons per branch bank while Canada had a ratio of 3283 persons per branch bank.

It is probable that the national service ratio is close to

Figure 2: Number of Banks, Population and Service Ratios for Windsor, 1951-1981



the desirable ratio for Canadian branch banks. This would have to be assumed barring other factors such as income, age and population density characteristics. If it is assumed that the national norm is desirable then Windsor is probably oversaturated with branch banks.

4.3 Windsor Branch Bank Pattern

Figure 3 shows the distribution of branches in Windsor in 1982. These figures are also displayed in Table 4. There were 10 bank offices along Ouellette Avenue, the major street in the core downtown area bounded by Riverside Drive and Wyandotte Street. Six of these were main offices; four branches were located in the downtown area.

Major roads with retail strings are another popular location for convenience functions. In Windsor, these roads included Ouellette (outside of the downtown core), Wyandotte, Ottawa and Tecumseh Roads. There were 7 branches in retail strings along Ouellette, 5 along Ottawa, 8 along Wyandotte and 10 along Tecumseh. This represents a total of 30 out of the 69 bank offices or 43.5% (46.8% of the 62 branch locations).

The planned shopping centre, described as a group of commercial businesses under one roof with a shared parking lot, was the last commonly noted location for the convenience-oriented branch bank. There were 17 branches in Windsor in planned shopping centre locations.

The most common branch bank locations in Windsor are on

[illegible]

- ▲ Downtown
- Free-Standing
- Planned Shopping

SCALE 1/75,000 ÉCHELLE

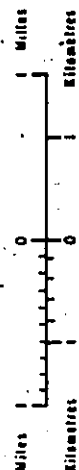


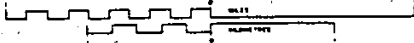
TABLE 4WINDSOR BANKS BY LOCATION TYPE

Location Type	Number of Offices	Percentage	Number of Branches	Percentage
Unplanned Retail String	30	43.5	29	46.8
Planned Shopping Centre	17	24.6	17	27.4
Downtown	10	14.5	4	6.5
Other Free Standing	12	17.4	12	19.3
TOTAL	69	100.0	62	100.0

Source: Author

METROPOLITAN WINDSOR

ONE-HALF MILE POPULATION CONCENTRA



1" = 2000'

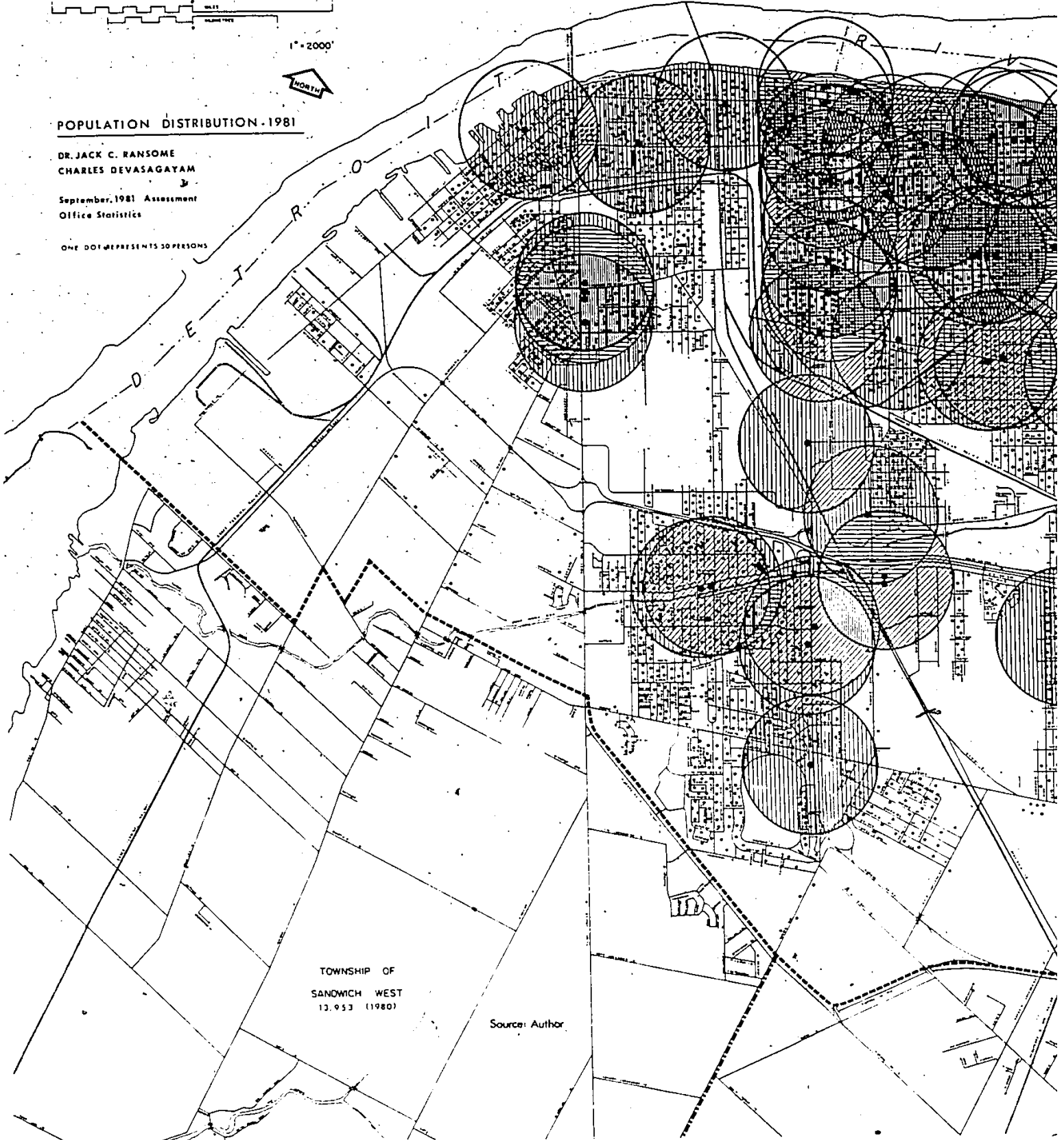


POPULATION DISTRIBUTION - 1981

DR. JACK C. RANSOME
CHARLES DEVASAGAYAM

September, 1981 Assessment
Office Statistics

ONE DOT REPRESENTS 50 PERSONS



TOWNSHIP OF
SANDWICH WEST
13.953 (1980)

Source: Author

Figure 4

NS OF WINDSOR BRANCH BANKS, 1981



from this part of the analysis because the downtown calculations would have been unreadable. However, the existence of these banks was considered in the analysis of the nearby bank calculations.

These 0.5 mile trade areas only capture the service ratio of approximately 2700 in 24 out of 62 cases. Any ratio over 2200 was considered adequate allowing for error in the population dot map. Figure 5 shows the divisions drawn for this analysis and Table 5 has the calculated service ratios for the branches in each division.

These divisions were drawn after analyzing the map and categorizing the bank locations that met the service ratio figure and those locations that did not meet these requirements. Area 1 of West Windsor consists of older residential neighbourhoods. Area 2 is South Windsor where a lower population density does not lend itself to branch banks. Area 3 is composed of the downtown district and Windsor's other major shopping strip of Ottawa Street. Wyandotte Street on the east side is Area 4 where the old retail strip has some branch bank locations. Area 5 of Tecumseh Road East is similar to Wyandotte Street East. Area 6 is composed of an older area called the East Windsor district while Area 7 is the newest subdivision of Forest Glade.

In West Windsor, the three branches north of Wyandotte had adequate service ratios. Three of the four branches along Huron Line in and around the shopping malls did not have the suggested

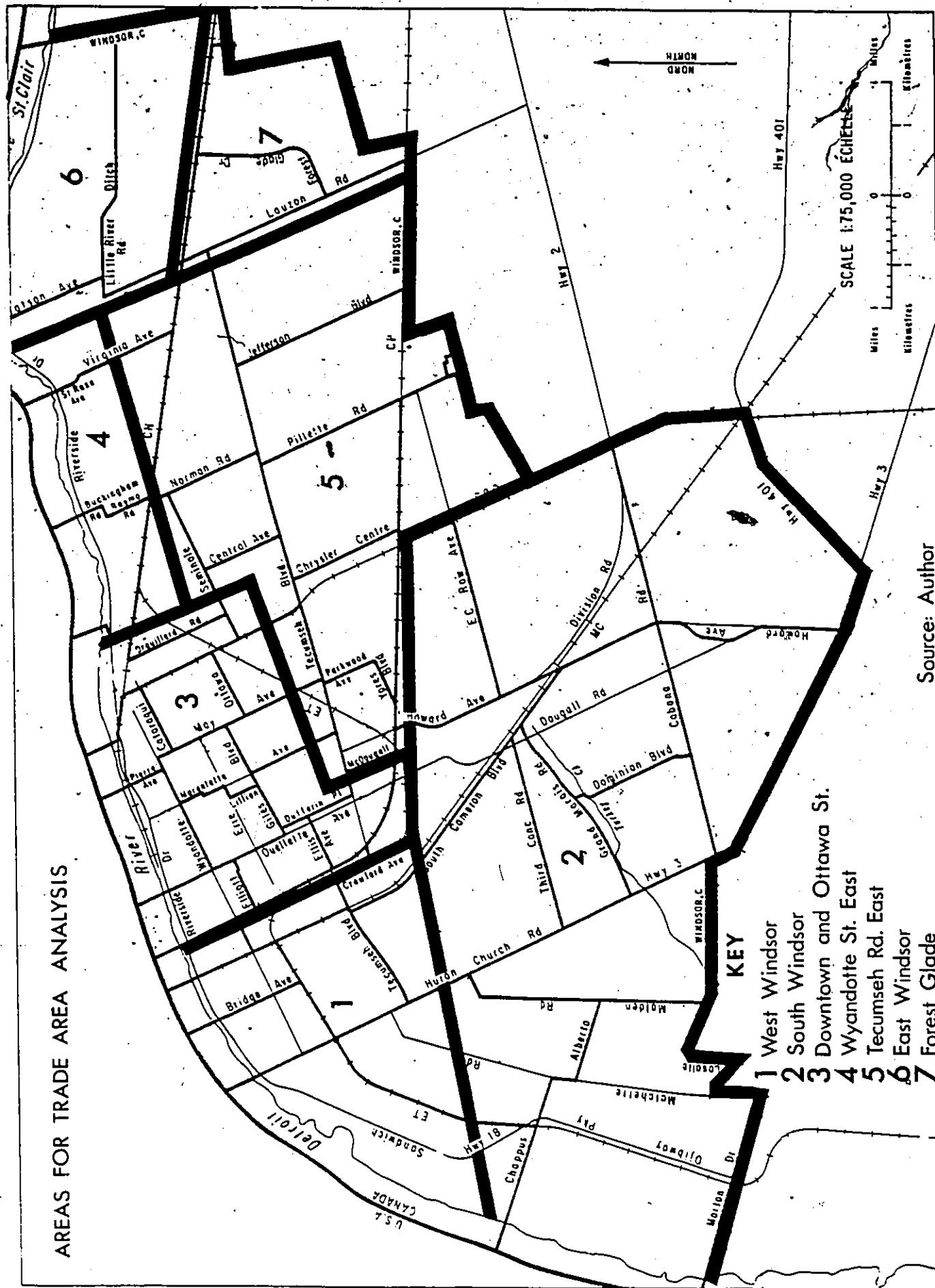


TABLE 5

ESTIMATED SERVICE RATIOS FOR WINDSOR BRANCH BANKS, 1982

<u>WEST WINDSOR</u>	<u>DOWNTOWN AND OTTAWA ST.</u>	<u>FOREST GLADE</u>	<u>WYANDOTTE ST., EAST</u>
5300	2000	7700	4500
7000	1900	1400	4200
4700	1300	1200	
2200	900	600	
1400	1000	800	
1400	1000	800	
1400	1200		
	800		
	800		
	1200		
	1100		
	1200		
	900		
	900		
	700		
	1600		
	2100		
	2100		
	2100		
	2500		
	2600		
	1900		
	1900		
	1200		
<u>SOUTH WINDSOR</u>	<u>EAST WINDSOR</u>	<u>TECUMSEH RD., EAST</u>	
3100	4100	2300	
3800	2500	2300	
1100	2500	1700	
1600		1700	
1800		2200	
2000		4700	
200		2500	
200		2600	
1800		3200	
0			

Source: Author

service ratio quota.

In South Windsor, the only branches that had the adequate service ratio within the 0.5 mile radius were the two located on Grand Marais at a plaza. The other branches were considerably lower.

In the Forest Glade area, the 5 branches around these malls did not have adequate service ratios. However, the branch in Forest Glade which is a residential suburb had more than a sufficient service ratio. North of this area, near Lauzon and Wyandotte, the existing three branches had a supported service ratio.

Moving towards the downtown district along the retail strip of Wyandotte, 2 separately located branches had large enough suggested service ratios. This was also the case along Tecumseh Road where 7 out of 9 branches located on this retail strip had the suggested service ratio.

The rest of the branches were in and around the downtown, concentrated in the Walkerville district (a separate community at one time) and along Ottawa Street (another strong retail pocket of Windsor). None of these branches had the adequate service ratio that was suggested for Windsor.

The population figures for branch banks range between 0 and 7000 within the 0.5 mile area. It is clear that branches located downtown, in or near shopping malls or plazas and in sparsely

populated suburbs generally did not have a supportive trade area within 0.5 miles from their site. The downtown area probably needed to have working population figures to substantiate the trade area limit. The branches located in or near malls likely developed trade area characteristics similar to the mall or plaza with which they are located. They draw customers from the cumulative attractive nature of the location and therefore have extended trade areas. South Windsor was another case where the population was not enough to explain the location of these branches. Those branches that were not in malls or plazas could be counterbalancing the low service ratio with higher incomes. This will be examined later on in the hypotheses.

CHAPTER FIVE

HYPOTHESES

5.1 Customer Reason for Bank Choice

The success of a branch depends in part on the number of customers it can attract. Marketing strategists seem to agree on at least two determining factors influencing attractiveness of a retail store location, namely the size of the store and the distance from the store to the customer. As mentioned earlier with branch banks, size is not a factor in choosing a bank. This suggests distance should be the main factor in choosing a bank. Therefore, the task of locating branch banks is a marketing one: "...how to identify the most convenient location for a new branch office" (Davidson, p. 85).

Banks are in fact using consumer behaviour studies as input to determine possible new branch locations. Unpublished consumer questionnaires undertaken by the Bank of Montreal for instance, (1971, 1974, 1976) reveal that the majority of customers for all banks chose their bank mainly due to the convenience of location in relation to their place of residence. "Indeed, much of the prior research assumes that a single variable, distance, is the primary choice determinant." (Lunsten, p. 58) Therefore,

the following hypothesis is put forward.

Hypothesis 1: More customers choose a bank because of a perceived convenient location to their residence than for any other reason.

5.2 Travel Distance

With respect to the distance customers travel to their bank, the point of origin would be expected to be related to the distance. The two most common points of origin of a bank trip, in order, are the home and the place of employment (Bank of Montreal unpublished reports, 1971, 1974, 1976). It is suggested that those who bank closer to work will walk or be restricted by a time factor, thereby travelling a shorter distance than those who bank close to home. These categories were mutually exclusive in the questionnaire of this thesis because once respondents answered that they used a bank because it was close to home, they could not answer again. The following hypothesis is then put forward.

Hypothesis 2: Customers who use a bank close to their residence travel farther on the average to that bank than those who use a bank close to their place of employment.

5.3 Effects of Changing Residence and Place of Employment

If convenience with respect to distance is the most important factor in the consumer choice of banks then consumers should change their bank when they change their home or work place, if the distance of the move results in a closer available bank. In other words, customers who bank close to work would be

expected to change their bank when they change their work address and increase their travel distance to the same bank. Likewise, customers who bank close to home would be expected to change their bank when their home address changes to one of another neighbourhood and the availability of a closer bank. Ashcroft (1979) found this to be true in the case of Ottawa, Ontario.

For someone who does not change either the location of home or work, it is still possible that the convenience factor may entice this person to change banks. New branches could move closer to these customers providing an intervening opportunity. Once a new bank locates closer to the customer without the customer moving, then some customers would be expected to change banks. However, with the net decline in the number of new branches, it is more likely that changing banks will be a result of customer moves. Therefore, the following hypotheses are proposed to be tested:

Hypothesis 3 a. For those people who choose a bank due to the convenience to home factor: as these people change their residence in the city there is a significantly higher number of people changing their major place of banking than for those who do not change their residence.

Hypothesis 3 b. For those people who choose a bank due to the convenience to work factor: as these people change their employment in the city there is a significantly higher number of people changing their major place of banking than for those who do not change their workplace.

5.4 Effects of Income and Age

Clawson defined the 45-64 year age bracket as the best customer potential for a branch bank because they are the group with the highest savings potential. Also, he discovered that areas with residents of above average incomes were good indicators of successful branch sites. Also, executives for the National Bank and Trust Company of Columbia realized the importance of monitoring the shifts of population and income; Nelson described the need to know income as a variable to determine the adequacy of an area sales potential; and Hodges and Tillman (1968) state that the income of an area can be used to estimate the amount of money that will be spent or saved in an area. Given this relationship, the following hypotheses are put forward;

Hypothesis 4 a. The number of branch banks per census tract will be positively correlated with those census tracts of the city which have higher median family incomes.

Hypothesis 4 b. The number of branch banks per census tract will be positively correlated with those census tracts of the city which have a higher proportion in the 45-64 age bracket.

5.5 Effects of Density

If convenience in terms of distance is the main reason for consumer bank choice, there should be similar trade areas for banks in areas with similar population densities. Customers are not willing to travel very far for their banking services. Therefore, banks tend to be evenly spaced or clustered at relatively short distances. As population densities increase and

SUPPORT for more banks grows, the space between bank locations would be expected to diminish (ABA Guide, 1968). Therefore, the following hypothesis is presented.

Hypothesis 5: The number of branches per census tract will be positively correlated with those census tracts of the city which have higher population densities.

There are other effects contributing to the explanation of the geographic pattern of branch bank locations. These might include the proximity of stores and business employment in a commercial strip, or the banking business generated by a major manufacturing plant. However, the literature analysis strongly suggests that the above population characteristics are the most important characteristics influencing the location of branch banks.

CHAPTER SIX

METHODOLOGY

6.1 Purpose of Questionnaire

As mentioned earlier, banking is now considered to be a low-order consumer-oriented urban function. It is necessary then to understand consumer habits in order to appropriately plan and explain bank locations. For the purpose of this study a consumer questionnaire was designed to reveal which factors influence customers in choosing a bank, the distance customers travel to a bank and the factors which cause customers to change their choice of bank or branch.

6.2 The Questionnaire

The questionnaire was ~~brief~~ to ensure the co-operation of the respondent while still collecting the desired information. A copy of the questionnaire and the accompanying letter is in Appendix B. The administration of the questionnaire, the nature of the questions and the wording protected the anonymity of the respondent.

The first part of the questionnaire asked for the location of the home, workplace and bank as measured by the nearest street intersection of each location. These questions were included for

later calculations of travel distances to the bank from residence or workplace. A further close-ended question asked for the main reason for bank choice. Other questions dealt with changes in locations of the home, workplace and bank. Finally, there were demographic questions to permit classification of the respondent by age and sex categories.

6.3 Type of Questionnaire

Preliminary attempts at telephone interviews resulted in a high rate of refusals or confused respondents. The telephone interview method would also be time consuming and costly.

As a result, a hand delivered mail-back questionnaire was chosen for data collection. A large white envelope contained a covering letter of explanation on coloured paper accompanied by a one page questionnaire on white paper and a self-addressed stamped return envelope.

6.4 Distribution of the Questionnaire

The sample size was influenced to a degree both by finances, time and a sample size producing an acceptable number of responses to generate reliable results. According to Backstrom and Hursh (1963, p. 28), "The size of the population has little bearing on sample size whenever the sample size is less than 5 percent of the population." Windsor's potential banking population of 20 years of age and older was 166,900 in 1981 according to the Census of Canada. A level of 300 returned questionnaires was chosen on the basis of a graduate questionnaire of a similar nature conducted in Ottawa (Ashcroft, 1979).

In order to achieve this goal of 300 acceptable responses, it was acknowledged that mail responses usually generate anywhere from a 30-40% response rate. As a result, 900 surveys were planned to be distributed.

A random sample was chosen by selecting addresses from a City Directory listing residents of Windsor 18 years of age and older. It was assumed based on literature reviews that persons under 18 represent a negligible proportion of bank customers. Also, the alphabetical listing of names would not in any way have biased groupings with respect to consumer bank activities to endanger the randomness of the selection of respondents.

An interval number was chosen from a random numbers table to be used to count from one listed candidate to the next. The starting page was found by the same method. The addresses were recorded until 900 possible respondents were collected. These addresses were organized according to roads and plotted on a base map.

Over a three week period in November, 1982 the questionnaires were distributed to the selected addresses. The first part of November was chosen to avoid cold weather and Christmas, both of which could have reduced responses. There was no personal contact made between the researcher and the respondents and the questionnaire was simply deposited in the mailboxes of the chosen sample. Apartment residents were excluded because of the difficulty in gaining access to the

mailboxes for the delivery of the questionnaire. Windsor had 16,895 apartments. The average number of adults per household was 1.9, so there were approximately 32,100 adults in apartments who were excluded from the sample. This is approximately 19.0% of the banking age population and this directs the sample toward banking behaviour of those who live in homes rather than in apartments.

6.5 Hypotheses Testing

The first hypothesis of the paper was tested through frequency distributions with a one-variable Chi-Square test for significance. For the second hypothesis, average distances were calculated for both groups of those who bank closer to their home and those who bank closer to their workplace. A t-test was used to distinguish if a significant difference between mean distances existed.

For the third hypothesis, a crosstabulation was used to compare those who changed their home or workplace address and also changed their bank or branch with those who changed their home or workplace address and did not change their bank or branch. A two-variable Chi-Square test for significance was run. The fourth and fifth hypotheses required mapping of the branch banks with median family income, the percentage of the population in the 45-64 year age bracket and population density. Correlation tests were run separately for each variable. Lastly, a multiple regression analysis was run on the number of branch banks per census tract with three variables: median family income, the percentage of population 45-64 and population

density.

CHAPTER SEVEN

GENERAL RESULTS OF QUESTIONNAIRE

7.1 Sex and Age of Respondents

The sample survey resulted in almost equal responses from both sexes, i.e., 58.0% from males and 42.0% from females and a total of 376 responses. The majority of the replies came from the 30-60 year age group (59.9%). The next largest group responding was the over 60 year age group with 23.5%. The youngest age group had the fewest responses with 16.6%. The proportions of sex and age groups for the sample are slightly disproportionate to those of Windsor.

7.2 Type of Savings Institution Choice

As stated in earlier chapters, banks account for more than half of all financial intermediary business in Canada. In Windsor's case, the questionnaire results show that 80.1% of the population use a bank to conduct the majority of their banking needs. This justifies the decision to exclude near-banks from detailed analysis in this study since they represent less than 20% of Windsor's banking business.

For the three major types of savings institutions, banks had 69 offices, credit unions had 25 offices and trust companies

had 10 offices. It was expected, therefore, that more people in the survey would respond that they do most of their financial transactions at banks since they have more offices and are more accessible to more people.

Table 6 compares the number of savings institution offices and the number of customers who do most of their business at these institutions. As expected, the rank order is the same. Banks are most often used. Credit unions and trust companies are used significantly less.

This does not necessarily mean that the most successful institutions financially will be those which have the greatest number of offices. The only conclusion that can be drawn is that banks have more locations in Windsor than all other institutions and attract more than a proportionate share of customers. This corresponds to earlier literature references stating that banks have more financial intermediary business in Canada than any other type of institution.

7.3 Bank vs. Number of Respondents

With reference to Table 7, it can be seen that the sample shows that customers choose banks in direct relationship to the number of branches. It would be expected that the more branches a bank has in a city, the larger the percentage of the total population that would do business at that bank. In this case, while more branches does mean more customers, the marginal rate of return per branch will reach a point of diminishing returns until it actually becomes unprofitable to open more branches.

TABLE 6

NUMBER OF SAVINGS OFFICES RELATED TO NUMBER OF RESPONDENTS PER SAVINGS INSTITUTION

	Windsor*	Number of Offices	Number of Respondents	Sample Respondents Per Institution**
Bank	66.3	69	301	80.1
Credit Union	24.0	25	29	7.7
Trust Company	9.6	10	22	5.9
Other	-----	--	3	.8
Multiple Answer	-----	--	21	5.5
	100.0	104	376	100.0

Source: *Windsor City Directory, 1981
 **Questionnaire

TABLE 7

BANK NAME RELATED TO NUMBER OF RESPONDENTS

Percentage of Bank Offices in Windsor*			Bank Named in Sample**		
Number of Offices	Percent	Bank	Bank	Percent	Number of Respondents
21	30.4	CIBC	CIBC	35.4	107
13	18.8	Montreal	Montreal	21.4	64
10	14.5	Royal	Royal	16.5	50
10	14.5	T-D	T-D	14.9	45
7	10.2	National	National	7.8	23
7	10.2	Nova Scotia	Nova Scotia	4.0	12
1	1.4	Continental	Continental	0.0	0
69	100.0			100.0	301

Source: * Windsor City Directory, 1982
 ** Questionnaire

Generally, the more offices a bank has the more people it will capture for customers. In the case of this survey, those who bank at specific banks are in direct proportion to the number of offices that the particular bank holds in Windsor. There is only one discrepancy in this relationship. It should also be noted that Continental Bank had no respondents from the sample but it is new in Windsor after merging with the Provincial Bank and it has only one office. As Lidawa stated on consumer behaviour concerning the age of the branch, the population takes time to become familiar with a new bank. It will take more time before residents of the area will consider changing to it even if it is closer.

7.4 Reason for Bank Choice

One question was designed to determine the major reason why a consumer chooses a bank. There were two types of choices that related to the location of the bank and services. The major location choices consisted of convenience to the place of residence and convenience to the place of employment. Less significant choices involved bank locations enroute to or from the place of employment, and the convenience of shopping and banking at the same location. These choices are considered to be geographic factors because they involve distance relationships between the home, work, shopping, and banking.

The term 'convenience' is deliberately comprehensive. Respondents could weigh various factors such as distance and time. Also, it will have to be correctly referred to as a 'perceived' convenience to the respondent. It is not a

univariate convenience but more of an individually perceived package of advantages.

Five possible choices were offered in the questionnaire that were more directly related to services offered by a bank. These service factors included longer banking hours, higher interest rates on savings, better mortgage or other loan rates, a friendly, efficient staff, and commercial or business relationships. These service factors all deal with operations within the branch itself rather than any type of distance or locational considerations.

Table 8 shows that of those respondents who noted only one factor, the locational choices were selected most with 80.3% choosing one of the factors. The most common choices with 49.4% of all answers was the convenience to the home choice followed by 20.8% for the convenience to the workplace choice. These were the two most important choice factors and both are geographical. They indicate that for Windsor more people choose a bank because of its convenience to residence or work than for any other reason.

Service factors account for 12.4% of the single answer responses. This relatively small percentage suggests that most people do not sacrifice convenience for the amount of difference in interest or service offered. Again, this adds to the theory that services are perceived to be similar from bank to bank and that the most competitive factor among them is location.

TABLE 8

REASON FOR BANK CHOICE: SINGLE ANSWER FREQUENCIES

Category	Absolute Frequency	Location Frequency (PCT)	Service Frequency (PCT)	Other (PCT)
Convenience to Home	88	49.4		
Convenience to Work	37	20.8		
Enroute To or From Work	5	2.8		
Allows to Shop & Bank Together	13	7.3		
Longer Hours	1		0.6	
Higher Interest on Savings	0		0.0	
Better Mortgage Rates	1		0.6	
Friendly, Efficient Staff	16		9.0	
Commercial - Business Ties	4		2.2	
Other	13			7.3
TOTAL	178	80.3	12.4	7.3

Source: Questionnaire

Upon further investigation of the service responses, a friendly efficient staff was the predominant choice with 9.0%. This is a perception of personnel characteristics and customer treatment. It also adds to the theory that other services are perceived to be similar by most people. Therefore, location remains the major competitive factor for banks and these locational choices are mainly influenced by convenience to home or work.

7.5 Changes in Home and Work

If distance is a major factor when people are choosing a bank, it would be reasonable to assume that when someone changes their place of residence or place of work they would also change their bank so that the chosen banks would maintain the factor of convenience to either of these new locations.

For Windsor, the percentage of people who changed their home address and those who changed their business address in the past 5 years is quite similar, as shown in Tables 9 and 10. The percentage of the sample of those who changed their home address was 20.0%. The percentage of those who changed their work address was 26.3% with slightly more changes in work addresses than home addresses.

The assumption is that people who change either their employment or residential location would also change their bank or branch if their new residence or workplace is farther away and another bank were closer to the residence or workplace. Those who did not change either place of residence or place of work

TABLE 9

HOME ADDRESS CHANGE

Category	Absolute Frequency	Relative Frequency (PCT)
Yes	60	20.0
No	240	80.0
No Answer	0	----
	—	—
TOTAL	300	100.0

Source: Questionnaire

TABLE 10

WORK ADDRESS CHANGE

Category	Absolute Frequency	Relative Frequency (PCT)
Yes	78	26.3
No	219	73.7
	—	—
TOTAL	297*	100.0

*Missing Observations = 3

Source: Questionnaire

would have less reason to change their banking location.

From Tables 9 and 10, 60 people changed their home address and 78 changed their work address. Out of these 138 changes, Table 11 reveals that 23.6% of the sample made at least one change of address and 11.4% changed both their place of residence and place of employment.

7.6 Changed Bank or Branch Patronage (Loyalty)

If customers were loyal to their major banking institution, it would be expected that when they change the branch office they use, they would choose another branch of the same institution. In the question of bank patronage change, Table 12 illustrates that 81.8% did not make any change in the past five years. For the 18.2% who did make a change in their major place of banking, 7.4% made the change to another branch of the same bank while 10.8% made a change to another branch of another chartered bank (or 40.6% and 59.4% of those who made a change). The majority of people who did make a banking change went to another bank rather than just another branch of the same bank. This reflects the fact that convenience is more important than customer loyalty and customers view one bank as similar to another bank. This also suggests that when people are deciding on a new bank, it is location rather than loyalty or service that is the major consideration.

If someone does not use banks for specialized services they do not necessarily need to change their branch if they have changed their home or work place. There could be people who have

TABLE 11

RESPONSES TO HOME ADDRESS CHANGE
AND WORK ADDRESS CHANGE

HOME ADDRESS CHANGE	WORK ADDRESS CHANGE		TOTAL
	YES	NO	
YES	34 11.4%	26 8.8%	60
NO	44 14.8%	193 65.0%	237
	—	—	—
TOTAL	78	219	297*

*Missing Observations = 3

Source: Questionnaire

TABLE 12

CHANGE OF PATRONAGE
OF ANOTHER BRANCH OR BANK

<u>Category</u>	<u>Absolute Frequency</u>	<u>Relative Frequency (PCT)</u>
Ⓡ No Change	242	81.8
Change to Another Branch Bank	22	7.4
Change to Another Chartered Bank	32	10.8
TOTAL	296*	100.0

*Missing Observations = 4

Source: Questionnaire

changed their home or workplace and have not formally changed their branch (by leaving their account registered at the old branch), although they do use another branch of their bank - that is, in fact, closer to them.

7.7 Mode of Transportation

Table 13 shows that the majority of the people surveyed utilize the automobile (66.9%) as the mode of transportation to their bank. This requires that banks have adequate parking for their patrons. Walking is the next major mode of transportation to a bank (19.7%). There are 10.4% of the people who both drive and walk (10.4%). For this latter group it is probable that the bank must be fairly close to their point of origin whether this be their home, workplace or shopping area. Only 1.7% of those surveyed use public transportation to get to their banks. Given this small percentage, public transit routes and stops should not significantly affect bank patronage. If apartment dwellers had been included in the survey it is likely that the walking percentage would have been higher.

7.8 Savings Institution by Primary Reason for Banking Institution Choice

There are many more bank offices in Windsor than any other type of financial institution. The majority of Windsorites conduct their money transactions at banks and the main reason for bank office choice is because of perceived convenient location rather than for any service reason.

The data also reveals some factors which are important for that part of the sample who bank elsewhere. A crosstabulation

TABLE 13MODE OF TRANSPORTATION

<u>Category</u>	<u>Absolute Frequency</u>	<u>Relative Frequency (PCT)</u>
Car	200	66.9
Public Transit	5	1.7
Walk	59	19.7
Car, Public Transit	2	0.7
Car, Walk	31	10.4
All 3	1	0.3
Public Transit, Walk	1	0.3
	<hr/>	<hr/>
TOTAL	299*	100.0

*Missing Observations = 1

Source: Questionnaire

was undertaken between savings institutions versus the primary reason for the institution choice.

The major reason for choosing a particular bank was due to the perceived convenience to the home. However, Table 14 shows that credit unions were chosen mostly for their friendly, efficient staff (35.7%). This suggests that people who choose credit unions do so because of a service decision while those who choose branch banks do so because of their location.

There are even fewer people from the survey who use trust companies for their banking needs so again the percentages are unreliable. Table 15 shows the highest single answers chosen among trust company customers were the service factors. In actual numbers this was a choice made by only 8 out of 10 sampled customers who answered with only one reply. The same problem appears with trust companies and credit unions. There were so few people from the sample who use them for their major banking needs that the main choice factor is difficult to state.

The bank marketers who believe that people choose their institution solely based on distance consideration would appear to be oversimplifying the situation. Yet, 41.6% of the bank customers in Windsor make their choice for locational reasons. To generalize, bank patrons choose their institution more for locational reasons while other financial institution patrons choose more for service reasons.

TABLE 14

REASON FOR CREDIT UNION CHOICE

<u>Category</u>	<u>Absolute Frequency</u>	<u>Relative Frequency (PCT)</u>
Location Factors	5	35.7
Service Factors	9	64.3
	<hr/>	<hr/>
TOTAL	14	100.0

Source: Questionnaire

TABLE 15

REASON FOR TRUST COMPANY CHOICE

<u>Category</u>	<u>Absolute Frequency</u>	<u>Relative Frequency (PCT)</u>
Location Factors	2	20.0
Service Factors	8	80.0
	<hr/>	<hr/>
TOTAL	10	100.0

Source: Questionnaire

CHAPTER EIGHT

HYPOTHESES RESULTS

8.1 Customer Perception of Bank Location

Hypothesis 1: More customers choose a bank because of a perceived convenient location to their residence than for any other reason.

It has already been stated that the responses fall into three groups. One group was related to distance or location and a second to service factors. The third group consisted of responses where multiple choices were selected. This last group was excluded from further analysis because a primary factor could not be distinguished. Table 16 shows the percentages of multiple and single answers.

The most frequent single reason for choosing a bank from the adjusted frequency of single answers only was the perceived convenience to the home (49.4%). The next most frequent answer was the perceived convenience to work (20.8%). In the case of Windsor, more people go to a given bank because of a perceived convenient location to their residence than for any other single reason. A one-variable Chi-Square test was found to be

TABLE 16

REASON FOR BANK CHOICE: ALL ANSWER AND SINGLE ANSWER FREQUENCIES

Category	Absolute Frequency	Relative Frequency (PCT)	Adjusted Frequency of Single Answers (PCT)
Convenience to Home	88	29.3	49.4
Convenience to Work	37	12.3	20.8
Enroute To or From Work	5	1.7	2.8
Allows to Shop & Bank Together	13	4.3	7.3
Longer Hours	1	0.3	0.6
Higher Interest on Savings	0	0.0	0.0
Better Mortgage Rates	1	0.3	0.6
Friendly, Efficient Staff	16	5.3	9.0
Commercial-Business Ties	4	1.3	2.2
Other	13	4.3	7.3
TOTAL	178	59.1	100.0
Multiple Answers of 2	85	28.3	
3	28	9.3	
4	8	2.7	
5	0	0.0	
6	1	0.3	
TOTAL	300	99.7	

Source: Questionnaire

significant at the 0.05 level (Appendix C). With 49.4% of the responses, the most important factor in choosing a bank was the perceived convenience to the residence.

The choice was worded as a 'convenience' to the residence. While convenience could be interpreted differently by different respondents, the most commonly expected reference would be to distance. Actual distances to the nearest bank from residences of respondents who bank because of the convenience to the home were compared to the distances to the banks they use. This showed 55.0% who stated that their bank choice was made because of a convenience to their home did bank at the closest bank (Table 17). Even more clearly, excluding those who did not give street intersections for distance measurements, 71.0% banked at the closest bank. The phrase 'convenient to home' is generally associated with distance.

8.2 Travel Distance

Hypothesis 2: Customers travel farther on the average to a bank from their residence than they do from their place of employment.

Sample customers were separated into two groups: those who said they chose a bank because of a perceived convenience to home and those who said they chose a bank because of a perceived convenience to their workplace. Distances were measured between the home and the bank for the first group and between the workplace and the bank for the second group. The distances were taken from the nearest street intersection to the actual home or work address. Given the average length of street blocks (i.e., 600-800 feet), this 'rounding off' technique has a negligible

TABLE 17

CONVENIENCE TO HOME CUSTOMERS WHO BANK AT THE CLOSEST BANK

Category	Number of Respondents	Relative Frequency (PCT)	Number of Respondents	Relative Frequency (PCT)
Bank at Closest Bank	49	55.0	49	71.0
Do Not Bank at Closest Bank	20	22.5	20	29.0
Did Not Answer	20	22.5	—	—
TOTAL	89	100.0	69	100.0

Source: Questionnaire

effect on the average bank to home and bank to work distances.

There were 72 respondents out of the 88 who stated that convenience to home was the reason for bank choice and who also provided street intersections to allow for the calculations of physical distances. Also, there were 30 respondents out of 37 who stated that convenience to work was the reason for bank choice and who provided street intersections for corresponding calculations. The mean distance was calculated for each group.

The mean distance travelled for customers who use a bank because it is close to their home is 0.54 miles with a standard deviation of 0.56 miles. The mean distance travelled for patrons who use a bank because it is close to their work is 0.50 miles with a standard deviation of 0.99 miles.

A one-tailed t-test was used to compare the mean distances from the work to the bank and from the home to the bank. The null hypothesis was that the distance from the home to the bank is not significantly greater than the distance from the workplace to the bank. The calculated t-value at 0.21 was much lower than the required t-value of 1.68 for the 0.05 level of significance, so that the null hypothesis could not be rejected. There is no significant difference between these means.

A major assumption of this hypothesis was that people at work have more time restrictions and walk to their bank if they do their banking from their workplace. Conversely, more people drive to their bank from their home. Given these assumptions, the expected distance travelled to the bank from the home would

be greater than the distance travelled to the bank from the workplace.

Without distinguishing the point of origin of the bank trip, Table 13 shows 66.9% of the people use the automobile as their mode of transportation. Walking is the next most popular mode of transportation at 19.7%. Thirdly, 10.4% used both the car and walking for their bank trip. This was the most frequent answer among the responses where more than one mode of transportation was listed. Public transit was not a major mode of transportation to the bank. A crosstabulation was undertaken between the two major reasons for bank choice and the mode of transportation to see if there was any difference between the mode of transportation used and the reason for bank choice.

Upon examination of Table 18, a greater portion of the customers who choose a bank for convenience to their home also use a car for transportation. Nearly 60.0% used a car compared to 23.9% who walk to their bank from their home. The remaining 15.9% use both the car and walking as their transportation from their home to their bank.

The results in the remaining part of the table were not expected. A similar portion of customers who bank because it is convenient to their work also use the car. There were 59.5% using the car and 32.4% walking to their bank.

If that part of the sample who both walked and took a car are deleted from the sample, then of the remaining respondents,

TABLE 18

MODE OF TRANSPORTATION BY REASON FOR BANK CHOICE IN PERCENT

MODE OF TRANSPORTATION	NUMBER	REASON FOR BANK CHOICE		
		CLOSE TO HOME	NUMBER	CLOSE TO WORK
Car	53	60.2	22	59.5
Public Transit	0	0.0	0	0.0
Walk	21	23.9	12	32.4
Car, Walk	14	15.9	3	8.1
Car, Public Transit	0	0.0	0	0.0
All Three	0	0.0	0	0.0
Public Transit, Walk	0	0.0	0	0.0
TOTAL	88		37	

Source: Questionnaire

of those who chose their bank because of convenience to work, 64.7% used the car and 35.3% walked to the bank. Of those who banked because of convenience to residence, 71.6% used the car and 28.4% walked to their bank.

A two-variable Chi-Square test was run on the frequencies showing that there was no significant difference according to their mode of transportation (Appendix C) between those who bank close to their home and those who bank close to their workplace. The assumption that more people walk to their bank if the bank location is more convenient to their place of work is not true in the case of Windsor. Since it is mainly a manufacturing city with major employment concentrations in a number of large suburban plants, there are probably more workers who drive to a bank compared with those cities with major employment concentrations in the downtown area. This is the probable explanation for the similar travel distances of patrons regardless of the point of origin for that bank trip.

8.3 Effects of Changing Residents and Place of Employment

Hypothesis 3: a.) For those bank customers who choose a bank due to the convenience to home factor, as these people change their residence in the city there is a significantly higher probability of changing their major place of banking than for those who do not change their residence.

b.) For those bank customers who choose a bank due to the convenience to work factor, as these people change their employment in the city there is a significantly higher probability of changing their major place of banking than for

those who do not change their workplace.

To state this another way, people who do not change their residence or workplace in the city are less likely to change their bank. Crosstabulations were completed between those people who changed their residence and/or workplace and their bank. The results are shown in Tables 19 and 20.

The first table includes only those people who chose a bank because of its perceived convenience to their home. There were 85.5% of the people who did not change residence and remained with the same branch bank. Only 14.5% of these residential non-movers changed their bank or branch. For those who did change their residence, a majority of 60.0% also made a change in the place of banking, while 40.0% of the residential movers continued to bank at the same branch. A two-variable Chi-Square test (Appendix E) showed that there was a significant difference between those who change their residence and their bank and those who change their residence and do not change their bank.

The second table illustrates similar customer behaviour. The table shows that 92.9% of the people who did not change their workplace also did not change their branch bank, leaving only 7.1% who did change their branch or bank without moving to a new employment location. Again a two-variable Chi-Square test found that there was a significant difference between those who change their workplace and their bank and those who change their workplace and do not change their bank (Appendix F).

Those who changed their workplace and new bank or branch

TABLE 19

THE CHANGE OF BANK CHOICE AND RESIDENCE FOR PATRONS
WHO CHOOSE BANKS CLOSE TO HOME

CHANGE OF RESIDENCE	CHANGE OF BANK		TOTAL	TOTAL (PCT)
	YES	NO		
YES	9	6	15	
	60.0	40.0		100.0
NO	11	65	76	
	14.5	85.5		100.0
			91	

Source: Questionnaire

TABLE 20

THE CHANGE OF BANK CHOICE AND WORK PLACE FOR PATRONS
WHO CHOOSE BANKS CLOSE TO WORK

CHANGE OF WORK	CHANGE OF BANK		TOTAL	TOTAL (PCT)
	YES	NO		
YES	5	7	12	
	41.5	58.5		100.0
NO	2	26	28	
	7.1	92.9		100.0
			40	

Source: Questionnaire

were proportionately less than those who obtained a new workplace and did not relocate to a new bank or branch. There were 41.5% who left their branch when they changed their workplace compared to 58.3% who did not leave their branch when they changed their workplace.

The assumption behind the hypothesis was that most people choose a bank with distance as the major consideration. The shorter the distance is to a branch bank from the point of origin, whether it be work or home, the greater the probability that one would bank at that location. Also, because of the nature of the banking service compared to the purchases of goods like food or clothes, once the choice is made for a bank, locational changes are probably made only when the distance consideration is affected. This would occur when a move in one of the two major points of origin are made.

When people do not change residence or employment locations, most people do not change their branch bank location (85.5% and 92.9% respectively). Conversely, when people do make a change they will change their branch or bank under the same distance consideration they apparently acted on for the previous branch bank choice (60.0% and 41.5% respectively).

The people who bank at a particular branch because it is convenient to where they work do not change their branch or bank as often as might be expected when they change their workplace. In fact, the majority of these workplace movers remain banking at the same branch. This would be most likely for workers who

change employment within downtown or shopping districts.

8.4 Effects of Income

Hypothesis 4: a.) The number of branch banks per census tract will be positively correlated with those census tracts of the city which have higher median family incomes.

If branch banks tend to be located in areas of higher median family incomes then there should be a larger number of banks in census tracts with higher median family income. According to a classification of tracts by median family income developed through a scattergram, ratios were calculated for the number of branch offices per census tract. Distinctive clusters appeared from the scattergram method of determining categories of income. These natural groupings would have been broken up with a quartile or quintile method of categorization so the categories suggested from the scattergram were used. The average number of branch offices per census tract was calculated for each category of median family income. Figure 6 shows this distribution.

The expected outcome would have the numbers of branch offices per census tract increase when progressing from the lowest income category to the highest. The results are shown in Table 21.

These ratios seem to contradict the expected outcome. The highest ratio of branches per census tract exists with the lowest median family income census tract. The lowest ratio of branches per census tract exists with the highest median family income areas. The trend is the same between these two extreme

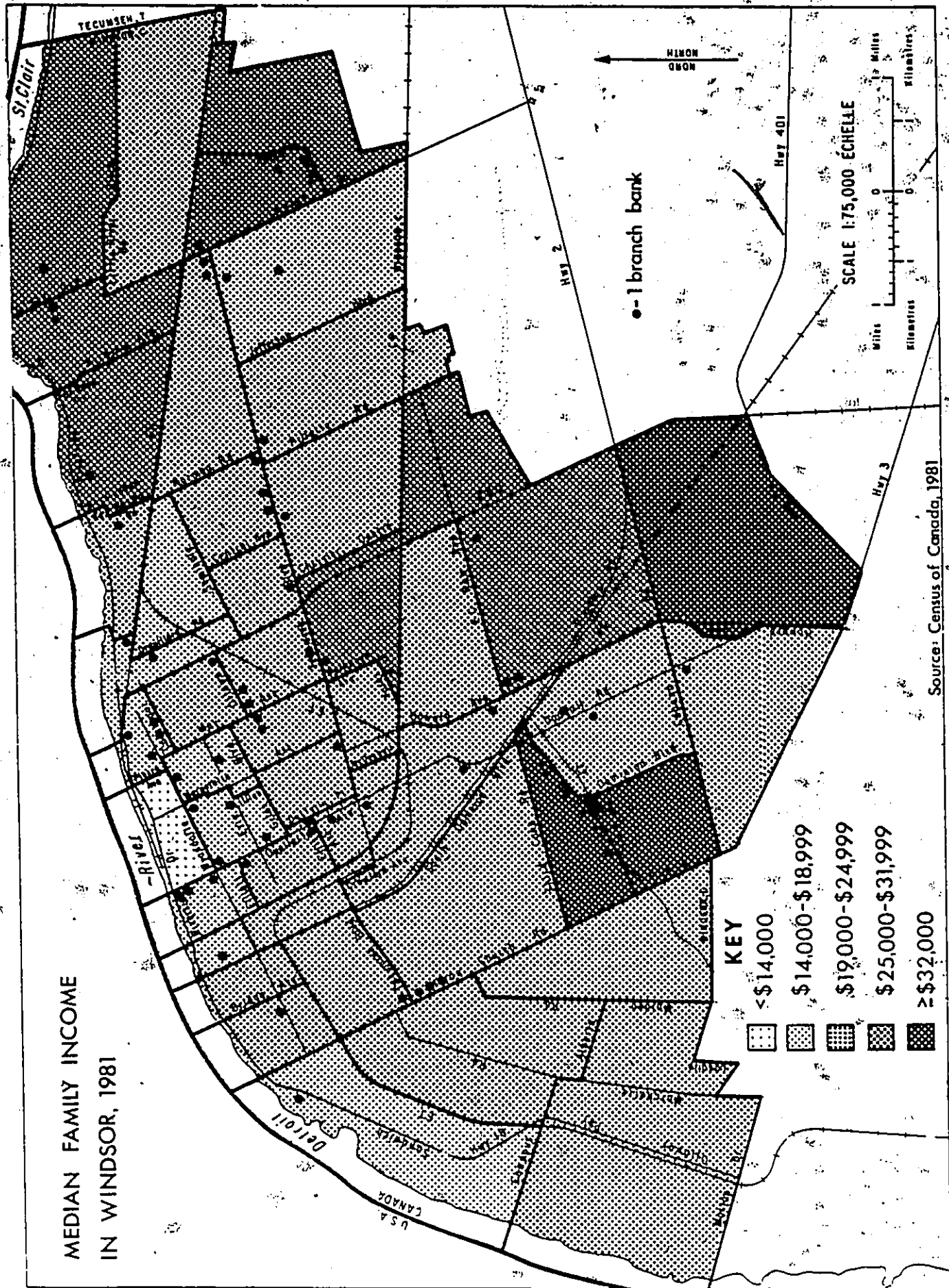


TABLE 21

BANKS PER CENSUS TRACT ACCORDING TO INCOME

<u>MEDIAN FAMILY INCOME</u>	<u>BRANCH BANKS PER CENSUS TRACT</u>	<u>NUMBER OF TRACTS PER CATEGORY</u>
<\$14,000	6.0	1
\$14,000-\$18,999	2.1	9
\$19,000-\$24,999	1.1	26
\$24,000-\$31,999	1.4	7
\$32,000+	1.0	3
		<u>1</u>
		46

Source: Census of Canada, 1981

categories with the branch office per census tract ratio decreasing as the income level of the census tract increases. The expected outcome does not exist for Windsor according to this analysis.

A Pearson r correlation test was also used to find the strength of association between median family income by census tract and the number of branch banks by census tract. The correlation coefficient was -0.302 . A t -test showed that this was significant at the 0.05 significance level. There is a moderately strong inverse relationship between the number of branch banks per census tract and the median family income. The coefficient of determination, which is the percentage variation in the dependent variable explained by variations in the independent variable, was 9% (r^2 in percent). Variations in income explain only a small amount of the variation in the number of banks.

The income variable is not a good indicator for determining the number of branch banks within areas bounded by census tract divisions. Income does not explain the existing branch bank pattern in Windsor, however, this is a variable that changes over time. Branch banks may persist in their locations even though income and the trade population decline. The possibility still remains that income is an important variable for new branch locations. Once a branch has been established, it can tolerate a certain degree of changing demographics due to a relatively greater stability in customers compared with other retail types.

8.5 Effects of Age

Hypothesis 4: b.) The number of branch banks per census tract

will be positively correlated with those census tracts of the city which have a higher proportion in the 45-64 age bracket.

The percentage of 45-64 years age data was categorized and mapped through the same methods that were used for median family income. The ratio of branch banks per census tract for each category of the percentage of 45-64 years per census tract was also calculated in a similar fashion and is illustrated in Figure 7.

In this instance, the expected outcome was higher branch bank to census tract ratios as the percentage categories of the 45-64 year age group increased. This age group is viewed as the preferred savings customers by banks. The results are shown in Table 22. The branch office to census tract ratio increases although only slightly as the percentage of population aged 45-64 per census tract increases.

A Pearson r correlation analysis was again used again to find the strength of association between the percentage of population aged 45-64 in each tract and the number of branch banks per tract. The correlation coefficient of 0.064 was not significant at the 0.05 level. Therefore, no apparent relationship has been demonstrated between the percentage of the population between 45 and 64 and the number of branch banks per census tract.

As with income, the potentially higher savings age group is also not a good indicator for determining the number of branch

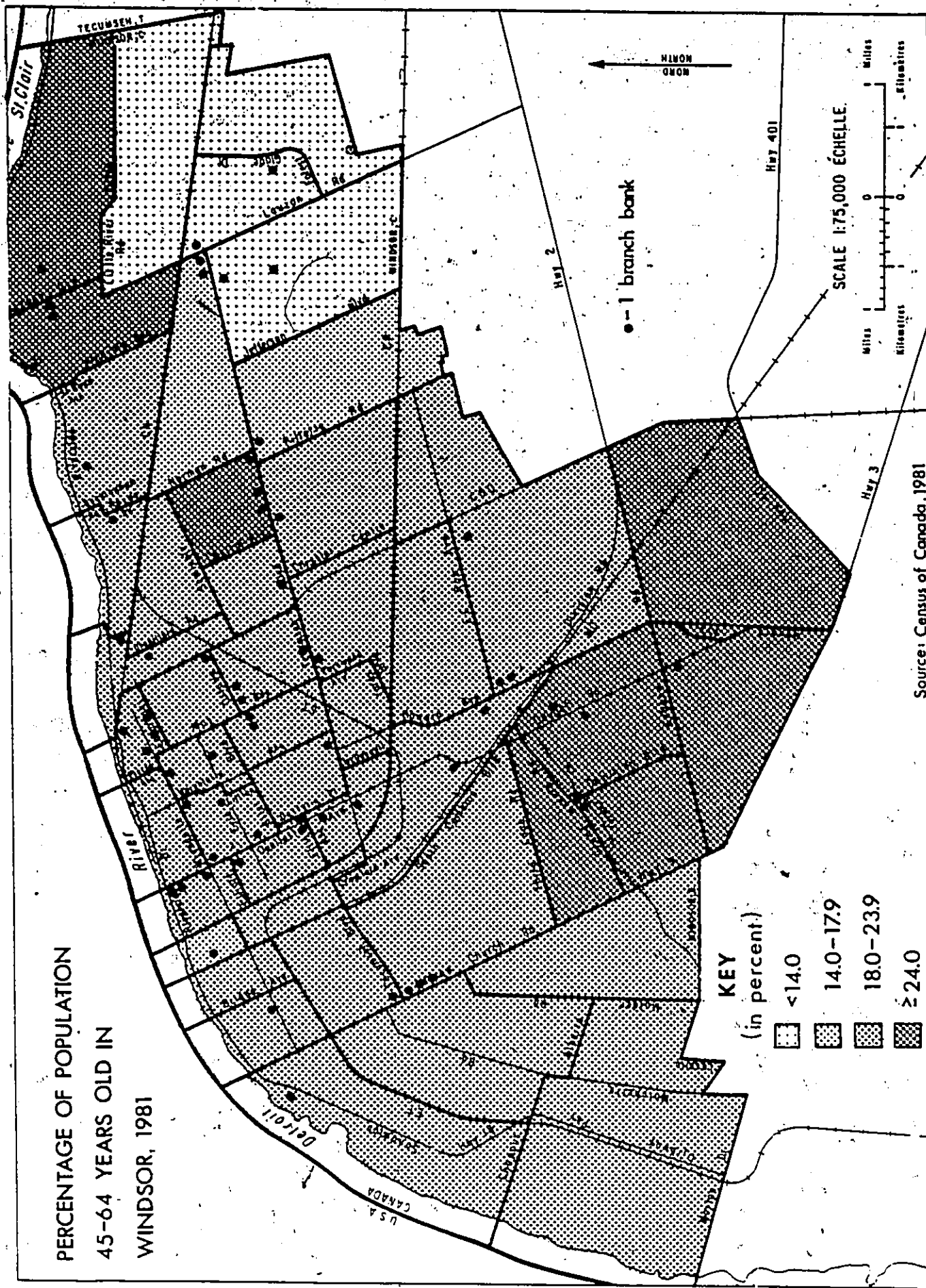


TABLE 22

BANKS PER CENSUS TRACT ACCORDING TO PERCENTAGE
OF 45-64 YEAR AGE GROUP

<u>PERCENTAGE</u> <u>OF</u> <u>45-64 YRS.</u>	<u>BRANCH BANKS</u> <u>PER</u> <u>CENSUS TRACT</u>	<u>NUMBER OF</u> <u>TRACTS PER</u> <u>CATEGORY</u>
<14%	1	4
14-17.9%	1.3	3
18-23.9%	1.5	31
24%+	1.5	8
		—
		46

Source: Census of Canada, 1981

banks within areas bounded by census tract divisions. Although the age variable also does not explain the existing branch bank pattern, it may still be important for new branch location analysis.

8.6 Effects of Density

Hypothesis 5: The number of branch banks per census tract will be positively correlated with those census tracts of the city which have higher population densities.

Figure 8 shows the population density by census tract for Windsor. The categorization and ratios for population density and branch banks per census tract were handled by the same method employed for income and age. It was expected that census tracts with higher population densities would also have more branch banks. The results are shown in Table 23. The number of branch banks per census tract increased slightly from the census tracts with the lowest population density to the census tracts with the highest population density.

Once again a Pearson r correlation analysis was used to find the strength of association between population density and the number of branch banks per census tract. A positive correlation was expected. The correlation coefficient was 0.365, which was significant. The coefficient of determination was only 13.2%. Although a significant positive correlation exists between the two variables, the variation in density explains only a small proportion of the variation in the number of branch banks per census tract.

8.7 Combined Effects of Income, Age and Density

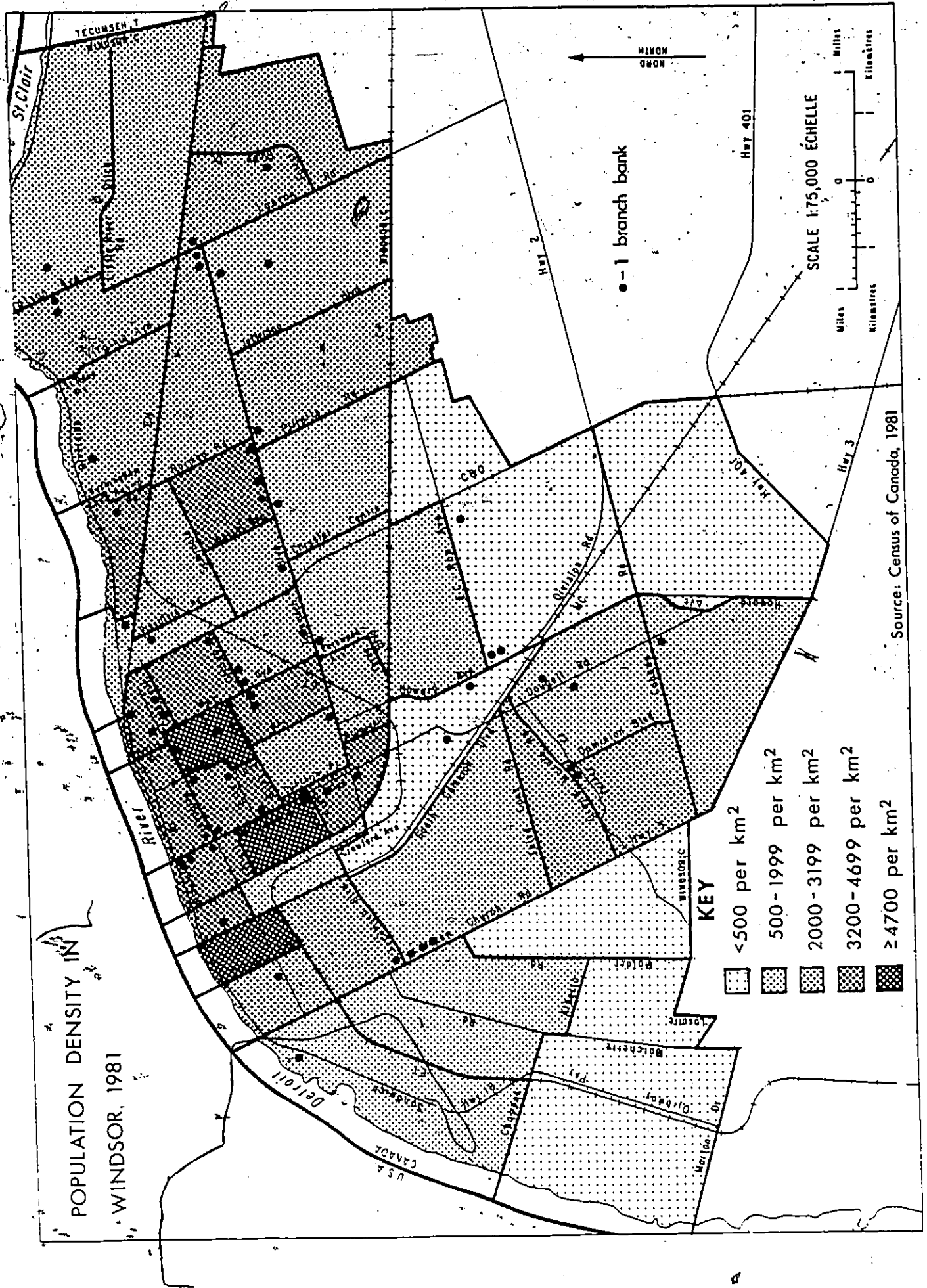


TABLE 23

BANKS PER CENSUS TRACT ACCORDING TO POPULATION DENSITY

POPULATION DENSITY (PERSONS/SQ. MI.)	BRANCH BANKS PER CENSUS TRACT	NUMBER OF TRACTS PER CATEGORY
< 500	1.0	5
500 - 1999	1.07	13
2000 - 3199	1.13	15
3200 - 4699	2.1	10
4700 +	1.7	3
		—
		46

Source: Census of Canada, 1981

Individually, the variables of income, age and density do not explain the number of banks per census tracts very well. A multiple correlation and step-wise regression analysis was run to determine whether the combined effects of these variables explained more of the variation in the number of banks. The multiple correlation coefficient was 0.435 indicating a moderately strong relationship. However, the multiple coefficient of determination showed that these variables only accounted for 18.9% of the variation of banks per census tract. A regression equation using these three variables, therefore, would be of little use in predicting the location of banks in Windsor.

Measurements in other cities have indicated a much higher correlation between higher income occurrence and the location of branch banks, and a higher correlation between predominant 45-64 age groups and the correlation of branch banks. These variables may have been important for Windsor's branches at the time of their openings so that the explanation of the existing branch bank pattern is more historical. Since many people do not change their branch bank unless they move, the initial success of a branch is the most important step for a branch. They often maintain enough customers to support them due to the habits of customers to remain with a bank longer than they will for other low-order convenience functions. In terms of savings potential, these two factors of age and income along with population density and competition would still be important factors in the decision to locate a new branch bank. Arterial accessibility, business

employment in the vicinity, and site availability may be significant factors for the locational pattern of branch banks in Windsor.

CHAPTER NINE

CONCLUSIONS

9.1 Study Limitations and Further Research

This study concentrated on the residential populations although banks attract employee populations as well as commercial business from areas. The residential and employee populations make up the retail side of the banking customers and this study defined the consumer habits of this segment of the banking business. The commercial side was not studied here. Further studies could benefit by examining the characteristics of commercial banking to develop a more complete understanding of banking locations. A questionnaire and analysis made at the destination (i.e., at branch banks) would refine both the banking customer behaviour and the trade area shapes and sizes of branch banks.

In the second part of the study, general population characteristics noted from other works as important variables for new branch banks were tested for Windsor's existing branch bank system. The fact that these variables are not strong indicators of locations in branch banks for Windsor's case indicates that

branch banks have stability. This stability may stem from locations originally located according to age, income and population density at the time of the branch openings. Historical analyses on these variables would test this.

9.2 Conclusions

The first purpose of this paper was to study consumer behaviour patterns of the population with respect to banks in Windsor. Eighty percent of the population used banks as their major savings institution. Consumers chose their bank primarily because it was close to home and secondly because it was close to work. The average distance of the bank trip was calculated to be 0.54 miles from home and 0.5 miles from work. These two distances were similar, unlike other studies where distance from work was considerably less. The fact that these distances are similar is attributed to the high percentage of bank trips made by car for both cases. The character of Windsor as an automobile centre suggests that urban typology is likely to be a contributing factor.

Bank customers were more likely to change to another bank if they changed their residence or workplace. When these locations changed, loyalty had little influence on the new bank choice. Minimizing the distance was still the primary reason in choosing a bank.

The second purpose of this paper was to study general population characteristics that could be used as predictor variables for locating banks. The existing number of banks gave

Windsor a service ratio of approximately 1 bank per 2700 people. Individual service ratios were calculated according to the average estimated trade area of banks of 0.5 miles. Many banks had less than the average necessary threshold population within this estimated trade area. The categorization of these bank sites into different types revealed that downtown banks and planned shopping centre banks did not exhibit the minimum service ratio. Only retail strip bank locations had sufficiently large residential populations to provide the minimum service ratios. Therefore, the 0.5 mile trade area limit found in this study is best applied only to banks with a large residential population within this limit. It is clear that residential density is only one factor in the viability of a branch bank. Other factors include employment density and supporting commercial business.

The general population characteristics chosen for analysis in this case were not strong indicators of good bank sites. Age (i.e., the potentially high savers) did not have any significant relationship with bank locations. Although income had a moderately strong inverse relationship and population density had a moderately strong positive relationship, the degree of variation explained by each variable is low. Even when these variables were combined, they could only account for 19.0% of the variation in the number of banks in an area. These variables are not the most important characteristics of the population in terms of bank locations in Windsor.

In the past, the banking system in Windsor experienced steady growth, but since 1976, the number of branches has

remained relatively stable. The service ratio of Windsor is lower than the national service ratio. If the national average can be assumed to be the threshold for Canadian cities, then Windsor is oversaturated with branch banks. The relatively small trade area limits are a result of an overabundance of branch banks. Until population conditions change, there will not be any need to change the overall number of Windsor branches.

APPENDIX A

THE COSTS AND BENEFITS OF PERSONAL BANKING SERVICES

This is a comparison of personal banking services offered by Canada's 5 major banks, 1 credit union, and 4 trust companies as of August 15, 1983. The following abbreviations will be used:

CIBC - Canadian Imperial Bank of Commerce
BM - Bank of Montreal
BNS - Bank of Nova Scotia
RB - Royal Bank
TD - Toronto Dominion
CSC - Civil Service Co-op (Credit Union)
CPT - Canada Permanent Trust
GT - Guaranty Trust
MT - Montreal Trust
RT - Royal Trust

SAVINGS ACCOUNT

Rate of Interest - 6 3/4% except CSC with 6 3/4% on first \$10,000, then 7% on the balance

Interest Calculated - all minimum monthly balance

Interest Paid - either April 30/October 31 or semi-annually

Charge for Withdrawals - all free; unlimited

Passbook - yes, except TD with a choice of passbook or monthly statement

DAILY INTEREST SAVINGS ACCOUNT

Rate of Interest - 6% except 3 trust companies (GT, RT and CPT) with 6 1/4%

Interest Calculated - all on daily closing balance

Interest Paid - last day of each month except GT and CPT semi-annually and MT April 30/October 31

DAILY INTEREST SAVINGS ACCOUNT (continued)

Charge for Withdrawals - free, unlimited except BNS with 1 free/month and 50¢/withdrawal thereafter; RB with 2 free/month and \$1.25/withdrawal or transfer thereafter; and TD with no charge if minimum monthly balance is \$1,000 otherwise 2 free/month and \$1.25/withdrawal thereafter

Passbook - yes, except TD with a choice and CPT with a statement if transactions occur

CHEQUING ACCOUNT

Cost of Cheques - RT and CPT are free; others are name only free with charges ranging from \$4.85 to \$8.00 for 200

Monthly Statement - yes, except RT with a passbook

Cancelled Cheques Returned - all except RT

Cheque Processing Charge - 24¢ or 25¢ except for MT with no charge; TD with no charge with minimum monthly balance of \$500 or 25¢/cheque and 19¢/cheque from Green Machine; and CPT with minimum monthly balance of \$200 or 25¢/transaction

Overdraft Protection - no, except BM with up to \$50 automatic and higher amounts upon application; and CIBC upon application

Interest Overdraft - all banks 21% except RB with 18% and BM lower by arrangement

Handling Charge for Old Items - only at banks: CIBC \$3.50 minimum charge/month if less than \$100 or \$5 minimum if over \$100; BM \$3.50 flat fee for first day and \$1.00 for each subsequent item; BNS and TD \$3.00 minimum charge/month; and RB \$2.25/cheque while account is overdrawn

CHEQUING ACCOUNT (continued)

Other Charges - CIBC .75¢ minimum monthly service charge, waived if no transactions; BM \$1.00/month for personal overdraft protection; BNS 50¢ monthly maintenance if minimum statement balance is less than \$100; RT \$1.50 monthly service charge, waived if minimum balance exceeds \$500

DAILY INTEREST CHEQUING ACCOUNT (only with banks and CPT)

Cost of Cheques - all between \$6.75 and \$8.00 for 200 plus RB and TD with name only free

Monthly Statement - yes, except for BM and CPT with a choice

Cancelled Cheques Returned - no, except RB and CPT

Cheque Processing Charge - free with minimum monthly balance of \$200 or 25¢ charge (TD requires a \$300 minimum monthly balance and CPT requires a \$500 minimum monthly balance); and RB with 2 free/statement or 25¢ charge

Rate of Interest - regular rate - all 3%
second tier - 6% if closing balance exceeds \$2,000, except BNS and CPT only requiring \$1,000 closing balance

Interest Calculated - all daily closing balance

Interest Paid - monthly

Overdraft Protection - CPT none; CIBC on application; BM automatic up to \$50 with more on application; BNS and RB up to \$2,000 on application; and TD up to \$5,000 on application

Interest on Overdraft - all between 18% and 21%

Handling Charges for Old Items - only at banks; CIBC minimum \$3.50/month if under \$100 and minimum \$5.00/month if over \$100; BM same as Chequing Account; BNS minimum \$2.00/month; RB \$1.00/month or \$2.25/cheque if old limit is exceeded

CHEQUABLE SAVINGS (not offered by GT and RT)

Cost of Cheques - varies from free to \$8 for 200

Monthly Statement - no, except TD with a choice and CSC with statements only for accounts with minimum monthly balances of \$100

Passbook - yes, except same above mentioned, TD and CSC

Cancelled Cheques Returned - only CSC

Cheque Processing Charge - 1 free cheque each quarter for each \$100 minimum quarterly balance, otherwise 20¢ and 25¢/cheque, except CSC with 20¢ up to \$3.60 monthly maximum and MT with 5 free monthly or 23¢ each

Rate of Interest - 3% except CSC with 6 3/4% and MT with 4% with minimum monthly balance of \$500

Interest Calculated - minimum half yearly balance except CSC with minimum quarterly balance and MT with minimum monthly balance

Interest Paid - April 30/October 31 except CSC with quarterly and MT semi-annually

Charge for Withdrawals - all free, unlimited

Source: Canadian Consumer

APPENDIX B

CONSUMER BANKING QUESTIONNAIRE

1. What type of institution do you use for the majority of your banking needs?

 bank credit union trust company other

2. What is the nearest street intersection to your home?

3. What is the nearest street intersection to your place of employment?

NOW, CONSIDERING THE BANK YOU USE MOST FREQUENTLY FOR YOUR MAJOR CHECKING OR SAVINGS ACCOUNT:

4. What is the nearest street intersection to your bank?

5. What is the name of this bank?

6. What is the primary reason for banking at this bank?

- convenient to your home
 convenient to your place of employment
 enroute to your place of employment
 allows you to shop and bank at the same location
 other. Please indicate one in list below, if possible.
 longer banking hours
 higher interest rates on savings
 better mortgage or other loan rates
 friendly, efficient staff
 commercial or business relationship

7. Have you changed your home address within the city in the last 5 years?

 Yes

 No. GO TO Q. 9.

8. What is the nearest street intersection to your former home?

9. Have you changed your work address within the city in the last 5 years?

 Yes

 No. GO TO Q. 11.

10. What is the nearest street intersection to your former place of employment?

11. Have you changed your bank or branch within the city in the last 5 years?

_____ no change. GO TO Q. 14.

_____ changed branch but not bank

_____ changed bank. Name of bank _____

12. What is the nearest street intersection to your former bank or branch?

13. Was this former branch or bank closer to your _____ home?

_____ work?

_____ shopping?

14. What is your sex? _____ Male

_____ Female

15. What is your age?

_____ under 30

_____ 30 - 60

_____ over 60

16. What is your occupation? _____

17. Does your job involve shiftwork? _____ Yes

_____ No

18. What mode of transportation do you use for your banking trips?

_____ car

_____ public transit

_____ walk

THANK YOU FOR YOUR COOPERATION!

APPENDIX C

Primary Reason for Bank Selection: A One-Variable Chi-Square Test

level of significance = 0.05

df = 9

χ^2 obs = 369.9

χ^2 crit = 16.92

APPENDIX D

Median Bank Trip Distance From Home and Work vs. Mode of Transportation: A Two-Variable Chi-Square Test

level of significance = 0.05

df = 1

χ^2 obs = 0.71

χ^2 crit = 3.841

APPENDIX E

Bank Change With Respect to Change of Residence: A Two-Variable
Chi-Square Test

level of significance = 0.05

df = 1

χ^2 obs = 12.6

χ^2 crit = 3.841

APPENDIX F

Bank Change With Respect to Change of Workplace: A Two-Variable
Chi-Square Test

level of significance = 0.05

df = 1

χ^2 obs = 4.70

χ^2 crit = 3.841

BIBLIOGRAPHY

Books

- American Bankers Association. 1968. A Guide to Selecting Bank Locations. American Bankers Association, New York.
- Applebaum, William. 1968. Guide to Store Location Research. Edited by Curt Kornblau. Addison-Wesley Publishing Company, Massachusetts.
- A Backstrom, Charles S., and Hursh, Gerald D. 1963. Survey Research. Northwestern University Press.
- Baxter, F. G. 1956. The Law of Banking. Carswell Co. Ltd., Toronto.
- Berry, Brian J. L. 1967. Geography of Market Centres and Retail Distribution. Prentice-Hall, Inc., Englewood Cliffs, New Jersey.
- Blackwell, Roger D., Engel, James F., and Kollat, David T. 1969. Cases in Consumer Behaviour. Dryden Press, Hinsdale, Illinois.
- Canadian Bankers' Association. 1978. Factbook 1976-1977: Chartered Banks of Canada. Canadian Bankers' Association, Toronto.
- Christaller, Walter. 1966. Central Places in Southern Germany. Translated from Die Zentralen Orte in Suddeutschland by Carlisle W. Baskin. Prentice-Hall, Inc., Englewood Cliffs, New Jersey.
- Cohen, Kalman J. 1969. Risk Analysis and Branch Bank Location Decisions. In Innovations in Bank Management. Edited by Paul F. Jessup. Holt, Reinhart and Winston, New York. pp. 330-334.
- Davies, Ross L. 1976. Marketing Geography with Special Reference to Retailing. R.P.A., Corbridge, Northumberland.
- Hodges, Luther H., and Tillman, Rollie. 1968. Bank Marketing: Text and Cases. Addison-Wesley Publishing Co., Massachusetts.

Lundsten, Lorman L. 1978. Market Share Forecasting for Bank Offices. No. 10. UMI Press, Ann Arbor.

Marr, William L., and Patterson, Donald G. 1980. Capital Formation and Mobilization: The Banking System. Canada: An Economic History. Macmillan Company of Canada, Toronto. pp. 243-258.

Marsh, Donald Bailey. 1954. Canada. In Banking Systems. Edited by Benjamin Hassott Beckhart. Columbia University Press, New York. pp. 119-182.

Misht Directories. 1951, 1956, 1961, 1966, 1971, 1977, 1981. Misht's Directories for the Greater Metropolitan Area. Misht Directories, Ltd., Toronto.

Neave, Edwin H. 1981. Canada's Financial System. John Wiley & Sons Canada Ltd., Toronto.

Articles and Unpublished Papers

Anderson, Floyd W. 1970. Survey of Existing Bank Branches: To Evaluate The Effects of Location On Branch Performance and Area of Influence. Major Paper, University of Windsor.

Ashcroft, Robert James. 1979. Intrametropolitan Branch Banking: Ottawa, 1930-1979. Unpublished M.A. Thesis, Department of Geography, Carleton University.

Bank of Montreal. 1971, 1974, 1976. Consumer Questionnaire Results.

Bank of Montreal Annual Report. 1982.

Bank of Nova Scotia Annual Report. 1982.

Binhammer, H. H., and Williams, Jane. 1976. Deposit-Taking Institutions: Innovation and the Process of Change. Economic Council of Canada, Ottawa.

Biels, Susan Schmidt. 1977. The Future of CBDs Financial Centres of Metro Areas. Journal of Regional Science. Vol. 17, no. 3, pp. 431-440.

Canadian Department of Finance. 1980. The Recent Behaviour of the Personal Savings Rate. Ottawa.

Canadian Imperial Bank of Commerce Annual Report. 1982.

Continental Bank of Canada Annual Report. 1982.

Cotner, Douglas Monroe. 1973. Evolving Optimum Branch Location:

A Study in Applied Commercial Geography. The Geographic Survey. Vol. 2, no. 1, pp. 1-10.

Cox, Edwin B., 1979. The Competition in Retail Banking. The Bankers Magazine. July-August, pp. 24-31.

Crawford, Roger J., 1973. A Comparison of the Internal Urban Spatial Pattern of Unit and Branch Bank Offices. The Professional Geographers. Vol. 25, pp. 353-356.

Davidson, Frederick., 1969. Locating Bank Branches with Management Science Help. The Bankers Magazine. Summer, pp. 84-89.

Devaney, F. John., 1973. A New Way to Choose Those Branch Locations. Bank Marketing. February, pp. 21-26.

Earl, Ronald L., and Rose, Peter., 1976. Marketing Studies on U.S. Banks: What Do They Tell? The Canadian Banker & ICB Review. Vol. 83, March-April, pp. 32-35.

Gobar, Alfred J., 1972. Site Location Analysis for Branch Banking. The Bankers Magazine. Winter, pp. 67-70.

Gup, Benton E., and Wafford, Larry E., 1979. Should Banks Locate in Shopping Centres. The Bankers Magazine. March-April, pp. 63-67.

Lisaga, J. F., 1977. Computer-Based Planning Model for the Economic Evaluation of Proposed Investments in New Bank Branch Sites. Cost and Management. Vol. 51, Jan-Feb, pp. 30-33.

Mintz, Jack M., 1979. The Measure of Return in Canadian Banking. Economic Council of Canada, Ottawa.

Martz, Jr., David C., 1976. The Location Research Program At Bank of America. Geographic Review. Vol. 66, no. 4, pp. 469-476.

National Bank of Canada Annual Report. 1982.

Nystuen, John David., 1959. Customer Movements and Business Locations. Unpublished PhD, University of Washington.

Pattison, J. C., and Quelch, J. A., 1979. Perspectives On Bank Marketing. The Canadian Bankers & ICB Review. Vol. 86, June, pp. 34-39.

Royal Bank of Canada Annual Report. 1982.

Saunders, Lewis S., 1969. Techniques of Opening a Branch Bank, Bank Study Series. The Bankers Publishing Co., Boston.


Smith, James E., and Dince, Robert R. 1976. Consider the Bankings Customer. The Bankers Magazine. Spring, pp. 58-62.

The Bank Act: A Preliminary Ontario Perspective. 1976. Government of Ontario.

Toronto-Dominion Bank Annual Report. 1982.

Townson, Morica. 1984. Getting the Most for Your Money. Canadian Consumer. Vol. 14, no. 1, pp. 8-16.

Vilican-Leman & Associates, Community Planning Consultants. 1975. An Analysis of the Application for the Proposed Branch Office of the Michigan National Bank. Michigan.



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